4. FOS Release A Thread Test Cases

The following Release A Thread test cases are provided in this section:

Infrastructure/Support Phases:

Data Base Thread Tests:

DMS 2000A Database Ingest, Validation & ODF Generation

Events Thread Tests:

EVT 2000A Event Message Display and Event Graphic Timeline

EVT 2020A Event History Request

General User Interface Thread Tests:

FUI 2000A Control Window Manipulation

User Interface Directive Input Thread Tests:

FUI 2005A ECL Directives

FUI 2010A PROC Builder

FUI 2030A Request Preplanned Command PROC

User Interface Tools Thread Tests:

FUI 2040A Time Selector

FUI 2050A HELP Tool (Preliminary)

FUI 2060A Real-time Alphanumeric Page Display

FUI 2080A Screen Management

Scheduling Phase:

Scheduling Thread Tests:

SCH 2000A Activity Definer Tool

SCH 2010A BAP Definer Tool

SCH 2020A General Scheduler & Timeline

SCH 2030A ASTER Interface Filter

SCH 2040A ATC Load Generation

SCH 2050A Microprocessor Loads

SCH 2160A RTS Load Generation

SCH 2200A Table Load Validation & Generation

Real-time Phase:

Real-time System/String Initialization Thread Tests:

RCM 2000A Logical String Configuration & Control

RCM 2010A NCC GCMR Processing

RCM 2020A Off-line Archive to SDPS

Ground Script Commanding Thread Tests:

CMD 2000A Command Authorization

CMD 2005A Ground Script Control

CMD 2010A Manual Command Processing

CMD 2015A Ground Script Command Processing

CMD 2017A Ground Script Manipulation

Real-time Telemetry Monitoring Thread Tests:

TLM 2000A Decommutation - Health & Safety/Standby Telemetry

TLM 2010A Decommutation - Housekeeping Telemetry

TLM 2020A Engineering Unit Conversion

TLM 2022A Simultaneous I and Q Channel Data Receipt

TLM 2025A Multi-byte Parameter Processing

TLM 2027A Limits Processing

TLM 2030A Real-time Telemetry Data Dropout

TLM 2040A Real-time Telemetry Graph Display

TLM 2050A Real-time Telemetry Spreadsheet Tables

TLM 2080A Real-time Telemetry Archive

Analysis Phase:

Telemetry History Thread Tests:

ANA 2000A Telemetry History Request & Dataset Generation

ANA 2020A User Specified Statistics Request & Dataset Generation

ANA 2070A Analysis Request Management

CON 2000A   Post Patch Confidence

Hardware:

HRD 2000A EOC Hardware

Test No.: DMS 2000A

Test Title: Data Base Ingest, Validation & ODF Generation

Test Support: See Appendix G

Test Dependencies: Spacecraft command & telemetry definition files; Scripts required: create_am1_dspace, create_am1_dbs, create_am1_errmsgs, cre_am1_procs, pdb_load.

Test Description:

This test is designed to verify the DMS capability to support the ingest and validation of command and telemetry definition files into the Project Database (PDB), upon receipt of the files from the spacecraft contractor. The test begins with the allocation of disk space plus the initialization of the database and associated tables. Once the database is initialized, scripts are invoked to ingest command and telemetry definitions files from a dedicated EOC directory location into the unvalidated project database table(s). The test conductor will compare the populated database tables with the definition files received from the spacecraft contractor to ensure the ingest of all files into the Sybase tables. A total of fourteen (14) definition files will be moved into Sybase, (9) telemetry and (5) command files respectively.

Once the file ingest is complete, two scripts are invoked to perform the validation of the command and telemetry files that reside in the unvalidated database table. Upon completion of the validation scripts, the test conductor verifies that valid definition files are moved from the unvalidated to the validated database table, those definitions that failed the validation process are not moved to the validated database and an error messages describing the reason for validation failure is written to a log file.

Success Criteria:

The test conductor is able to allocate the required diskspace, initialize the database and associated tables. Once the database is initialized, the test conductor is able to ingest the telemetry and command definition files provided by the spacecraft contractor. The definition files are moved from the /fos/am1/test/pdb/input/001 directory into the Sybase database. Once the database has been populated, the test conductor is able to run DMS scripts to invoke telemetry and command validation. At the conclusion of the validation process, the validate PDB database is populated with the definitions that passed validation error free. Any definitions that fail the validation process will be written to a validation log and are not moved to the validated database.

Procedures:

1. Log onto the fostest workstation in the EOC. Once logged on the EOC workstation, rlogin to hamilton.

   %: username: **fostest**

   %: password: **********

% **rlogin hamilton**

% password**:*********

Database Initialization

2. Initialization of the FOS database during testing is performed after the following steps have been performed during the integration phase:

   a. System administrator has installed the Sybase server and any workstations interfacing to the Sybase server have Open Client installed.

   b. System administrator created the fos_dba Sybase account by running the “create_fos_dba.sql” script while connected to Sybase under the “sa” account.

   c. System administrator has edited the “fos_dba_env” unix script to set the PDB_DIR environment variable to /fos/pdb/int/am1.

   d. The .cshrc file for fostest account(s) have been modified to source “sybasescript” and ‘fos_dba_env” to set up the Sybase and fos account environment variables.

3. Perform the steps necessary to initialize database diskspace and set up the database tables

   a. Initialize the database diskspace by running the following script:

      % **create_am1_dspace.script** (if script is not available, run the following SQL command from within Sybase:

      isql -Ufos_dba -Bfos_dba < create_am1_dspace.sql)

   b. Initialize the am1 databases, tables within the databases and associated triggers by running the following script:

      % **create_am1_dbs.script**

   c. Initialize error messages in sysuser messages table by running the following script:

      % **create_am1_errmsgs.script**

   d. Upon completion of the errmsgs.script connect as ‘sa’ and perform the following SQL commands:

      % **isql -Ufos_dba**

      password: ********

      > **use am1_fos_val**

      > **go**

      > **sp_configure “allow updates”, 1**

      > **go**

> **reconfigure with override**

> **go**

> **update sysusermessages**

> **set langid=0**

> **where langid=NULL**

> **go**

“allow updates”, 0

> go

> reconfigure with override

> go

> exit

e. Create the am1 database procedures and associated triggers by running the following script:

% **cre_am1_procs.script**

Telemetry and Command Ingest

4. Change directory to /net/beeper/fos/am1/test/pdb/input/001 and list the files that reside in this directory. These are the telemetry and command PDB input files received from the spacecraft contractor. Snap the list of files in directory.

% **cd /net/beeper/fos/am1/test/pdb/input/001**

% **ls -la**

% **snap**

The files that reside in input/001 are:

tlm_packet_xxx.pdb	***cmd_parm_xxx.pdb***
tlm_parm_xxx.pdb	***cmd_desc_xxx.pdb***
tlm_desc_xxx.pdb	***cmd_fixdata_xxx.pdb***
tlm_analog_xxx.pdb	***cmd_vardata_xxx.pdb***
tlm_calcurve_xxx.pdb	***cmd_verify_xxx.pdb***
tlm_rylim_xxx.pdb	
tlm_limsel_xxx.pdb	
tlm_delta_xxx.pdb	

tlm_dstate_xxx.pdb

5. Change directory to /net/beeper/fos/am1/test/pdb/load and verify the script to run the PDB ingest (pdb_load.script) resides in this directory.

   % **cd /net/beeper/fos/am1/test/pdb/load**

   % **ls**

   a. Run pdb_load.script. This script invokes the necessary commands/subscripts that setup the environment and directory location for processing the input files. Additionally, this script will invoke the necessary commands/subscripts to perform the bulk copy of the files into the database.

      % **pdb_load.script**

   b. Upon completion of the PDB load, enter Sybase and verify the unvalidated database table is populated with telemetry & command definition files.

      %: **isql -Ufos_dba**

      password: **xxxxxxxx**

      1> **use am1_fos_unv**

      2> **go**

      3> **select count(*) from <tablename> where <tablename> =**

tlm_packet_pdb	***cmd_parm_pdb***
tlm_parm_pdb	***cmd_desc_pdb***
tlm_desc_pdb	***cmd_fixdata_pdb***
tlm_analog_pdb	***cmd_vardata_pdb***
tlm_calcurve_pdb	***cmd_verify_pdb***
tlm_rylim_pdb	
tlm_limsel_pdb	
tlm_delta_pdb	
tlm_dstate_pdb	

      4> ***go***

6. Compare telemetry and command Sybase tables against the spacecraft contractor files that reside in the pdb/input/001 directory. Verify that all 14 definition files available in the input/001 directory have been ingest into the unvalidated database tables.

Telemetry & Command Validation

7. Run the script required to invoke the validation of the telemetry PDB. Note: Telemetry validation and build of the validated database can take up to 1 hour.

   % **val_tlmpdb**

   a. Upon completion of the validation script, review any validation errors by viewing the telemetry validation report

      % **more tlm_valsum.rpt**

   b. View the telemetry portion of the validated database to confirm the population of the database with validated telemetry definitions. Compare the contents of the validated database with the contents of the telemetry validation report. Those telemetry mnemonics that appear in the report as having erred during validation should not appear in the validated database. This step can be performed during post-test analysis if necessary. To view the validated database in Sybase:

      % isql _Ufos_dba

      password: **********

      1> **use am1_fos_val**

      2> **go**

      3> **select count(*) from <tablename>** *where valid telemetry tablenames are listed in step 5b above.*

      4> **go**

8. Run the script required to invoke the validation of the command PDB.

   % **sel_val**

   a. Upon completion of the validation script, review any validation errors by viewing the command validation report

      % **more sel_log.out**

   b. View the command portion of the validated database to confirm the population of the database with validated command definitions. Compare the contents of the validated database with the contents of the command validation report. Those command mnemonics that appear in the report as having erred during validation should not appear in the validated database. This step can be performed during post-test analysis if necessary. To view the validated database in Sybase:

      % isql _Ufos_dba

      password: ********

      1> **use am1_fos_val**

2> **go**

3> **select count(*) from <tablename>**   *where valid command tablenames are listed in step 5b above.*

4> **go**

Operational Data File Generation

9. Set the directory path for generation of operational data files (ODFs).

   % **cd /net/beeper/fos/am1/test/bin**

10. Build the Command ODF from the command PDB files that were ingest into sybase during previous steps of the test. At the unix prompt enter:

    % **FdDbBuildCmdOdf**

    a. Verify an event message is displayed confirming that the Command ODF generation is complete.

    b. Verify the Command ODF file CmdOdf.1.0 has been generated and resides in the test/bin directory. At the UNIX prompt enter:

    % **ls**

    % **snap**

11. Build the Telemetry ODF from the telemetry PDB files that were ingest into sybase during previous steps of the test. At the UNIX prompt enter:

    % **FdDbBuildTlmOdf**

    a Verify an event message is displayed confirming the Command ODF generation is complete.

    b. Verify the Telemetry ODF file(s) have been generated and reside in the test/bin directory. At the UNIX prompt enter:

       % **ls**

       % **snap**

    c. The following files should exist in the directory:

Tlm16kDiagOdf.1.0	**Tlm16kDiagParmOdf.1.0**
Tlm1kDiagOdf.1.0	**Tlm1kDiagParmOdf.1.0**
TlmCtiuOdf.1.0	**TlmCtiuParmOdf.1.0**
TlmHealthOdf.1.0	**TlmHealthParmOdf.1.0**
TlmHouseOdf.1.0	**TlmHouseParmOdf.1.0**

12. Build the FUI Parameter ODF from the FUI parameter PDB files. At the UNIX prompt enter:

    % **FdDbBuildFuiOdf**

    a. Verify that an event message is displayed confirming the FUI Parameter ODF generation is complete.

    b. Verify the FUI Parameter ODF has been generated and resides in the test/bin directory. At the UNIX prompt:

        % **ls**

        % **snap**

    The Fui.odf.1.0 file should exist in the directory:

13. Build the RMS System ODF file from the System PDB files. At the UNIX prompt enter the following:

    % **FdDbBuildSysOdf**

    a. Verify that an event message is displayed confirming the RMS System ODF generation is complete.

    b. Verify the RMS System ODF has been generated and resides in the test/bin directory. At the UNIX prompt enter:

        % **ls**

        % **snap**

    The Sys.Odf.1.0 following file should reside in the directory:

14. Build the Event ODF file from the Event PDB files. At the UNIX prompt enter the following:

    % **FdDbBuildEventOdf**

    a. Verify that an event message is displayed confirming the Event ODF generation is complete.

    b. Verify the Event ODF has been generated and resides in the test/bin directory. At the UNIX prompt enter:

        % **ls**

        % **snap**

    The Event.Odf.1.0 file should reside in the directory:

15. Build the Analysis Expert System ODF. At the UNIX prompt enter the following:

    % **FdDbBuildAnlOdf**

a. Verify that an event message is displayed confirming the Analysis Expert System ODF generation is complete.

b. Verify the Analysis Expert System ODF has been generated and resides in the test/bin directory. At the UNIX prompt enter:

% **ls**

% **snap**

16. Verify the Analysis.Odf.1.0 file has been created and resides in the directory:

17. Exit the user account and log off of the user workstation to end the test.

Test No.: EVT 2000A

Test Title: Event Message Display and Event Graphic Timeline

Test Configuration: See Appendix G

Test Support: DMS FdEvEventDriver, Real-Time Server, Data Server, and a UserStation

Test Description:

This test is designed to verify the ability to display generated event messages at EOC user stations utilizing event message display options supplied by the FOS user interface. The test begins with the initialization of the EOC and display of the event graphic timeline. The event message generator is invoked, multicasting event messages for display. The graphical event timeline functionality is then verified, including event message formatting, timeline indicators, time correlated visual indicators, and event message selection/graphical timeline interaction.

Success Criteria:

This test is considered successful when DMS generated events are displayed by FUI via the Event Display Window; events generated and displayed are representative of the FOS subsystems; the user is able to filter events displayed at the event graphical timeline window based on user selected filter criteria; the graphical timeline updates according to event messages being displayed; when a period in the timeline is selected, the event display scrolls to the event that corresponds to that period in time.

Procedure:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: ********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

   note : Script is complete when the user gets the following message in the terminal window:

   ‘Successful installation of signal handler’

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   note : Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL > **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: ********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   note : Script is complete when the user gets the following event message:

   ‘String 100 was created.’

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG=MIRROR

   note : Wait to receive the following event message:

   ‘Successfully connected to string 100’.

7. Verify on the workstation that the mini-Control Window has been invoked and is displayed at the workstation.

8. Initialize the event graphical timeline and event message displays. At the mini-Control Window select the Tools button. Click on the EventDisplay Window.

   a. Verify that the EventDisplay window has been invoked and is displayed at the workstation.

9. Initiate the DMS event message driver which is designed to generate event messages for display at the EventDisplay window. Initiate the event driver by entering the following UNIX commands.

   % **cd /fos/test/am1/scripts/setup**

%: **setenv SCRIPT UserStation**

% **setenv FOS_SERVICES /fos/test/am1/data/fosoexoe.fos-services**

% source **FosEnvVars**

% **cd ../..**

% **cd bin**

% **cd [machine platform type]**

% F**dEvEventDriver** *(repeat this command or !! to invoke the same events generation being displayed a multiple number of times)*

a. Verify that the event driver initialization generates events that are being displayed at the EventDisplay window. Verify the graphic timeline is updated to reflect the events generated.

b. Verify the formatted event messages are displayed with the correct UTC time tag.

c. Verify the formatted event messages are displayed with the correct event type.

d. Verify the formatted event messages are generated with the correct Event Identifier.

e. Verify the formatted event messages are generated with the correct Event text.

f. Verify the formatted event messages are generated with the correct Spacecraft Identifier.

g. Verify the formatted event messages are generated with the correct Subsystem Identifier.

10. At the EventDisplay window, invoke the event filter capability to filter the event messages by Event type.

a. At the filter selection window enter only the Analysis Subsystem as the Event type.

>**ANL**

b. Invoke the event generator from the terminal UNIX prompt

% **FdEvEventDriver**

c. Verify that the EventDisplay window and graphic timeline updates to reflect only Analysis event messages that have been generated.

d. Select the Event type to be equal to the Command Subsystem (**CMD, TLM** and **ANL** subsystems).

e. Invoke the event generator from the terminal UNIX prompt

% **FdEvEventDriver**

f. Verify that the EventDisplay window and graphic timeline updates to reflect only command, telemetry and analysis event messages that have been generated.

11. At the user workstation, make the necessary mouse and keyboard selections to scroll through the events text display.

    a. Verify that for each event; a corresponding indicator on the timeline is present, at the correct UTC coordinate as displayed on the event graphical timeline.

    b. Verify that all events of the same event type contain the same color code as portrayed on the event graphical timeline.

12. Scroll through the events display. Verify that as the events text display is scrolled the graphical timeline is also scrolled and displays time correlated visual indicators of each specific event.

13. At the user workstation, make the necessary mouse and keyboard selections to select an event in the graphical timeline.

    a. Verify that the event text display scrolls to the event text that corresponds to the selected event in the graphical timeline.

14. At the user workstation, make the necessary mouse and keyboard selections to 'search' for a specific event message(s) based on textual content.

    a. Verify that the specific event message(s) defined in the 'search' is scrolled to the event text display as well as in the graphical timeline.

    b. Repeat the search on the same text string; verify that the next available event containing the search criteria is highlighted.

    c. Verify that the “bracket” in the graphical timeline corresponds to the displayed formatted messages in the Events Display window.

15. By viewing the event display, verify that the latest event messages appear at the bottom of the page, while the oldest messages are scrolled-up from the top of the page.

16. At the EventDisplay window, invoke the event filter capability to filter the event messages by spacecraft ID.

    a. At the filter selection window enter the S/C ID to be filtered:

       >**AM1**

    b. Invoke the event generator from the terminal UNIX prompt

       % **FdEvEventDriver**

    c. Verify that the EventDisplay window and graphic timeline updates to reflect only event messages which are associated with the AM-1 spacecraft.

d. Select the spacecraft ID filter to be equal to PM-1. At the filter selection window enter the event ID to be filtered:

    >**PM1**

e. Invoke the event generator from the terminal UNIX prompt

    % **FdEvEventDriver**

f. Verify that the EventDisplay window and graphic timeline updates to reflect only event messages which are associated with the PM-1 spacecraft.

g. At the user workstation, make the necessary mouse and keyboard selections to disengage previous filtering selections.

17. At the EventDisplay window, invoke the filter capability to filter the event messages by subsystem ID.

a. At the filter selection window enter the subsystem ID to be filtered:

    >**COM**

b. Invoke the event generator from the terminal UNIX prompt

    % **FdEvEventDriver**

c. Verify that the EventDisplay window and graphic timeline updates to reflect only event messages which are associated with the COM subsystem.

d Select the subsystem ID filter to be equal to COM and AST. At the filter selection window enter the subsystem ID to be filtered:

    >**COM**

    >**AST**

e. Invoke the event generator from the terminal UNIX prompt

    % **FdEvEventDriver**

f. Verify that the EventDisplay window and graphic timeline updates to reflect only event messages which are associated with the COM and AST instruments.

g. Enter an invalid subsystem in the search-string dialog box for filtering.

    >**CON**

h. Verify Filtered Events is equal to zero (0).

i. At the user workstation, make the necessary mouse and keyboard selections to disengage previous filtering selections.

18. At the EventDisplay window, invoke the filter capability to filter the event messages by ground system.

a. At the filter selection window enter the instrument ID to be filtered:

>**---**

b. Invoke the event generator from the terminal UNIX prompt.

% **FdEvEventDriver**

c. Verify that the EventDisplay window and graphic timeline updates to reflect only event messages which are associated with the “---“ string.

d. Select the ground system filter option to be equal to ops and test. At the filter selection window enter the instrument ID to be filtered:

>**ops**

>**test**

e . Invoke the event generator from the terminal UNIX prompt

% **FdEvEventDriver**

f . Verify that the EventDisplay window and graphic timeline updates to reflect only event messages which are associated with both the ops and test strings.

g. At the user workstation, make the necessary mouse and keyboard selections to disengage previous filtering selections.

19. At the EventDisplay window, invoke the filter capability to filter alarm messages.

a. At the filter selection window enter the instrument ID to be filtered:

>**alarm**

b. Invoke the event generator from the terminal UNIX prompt

% **FdEvEventDriver**

c. Verify that the EventDisplay window and graphic timeline updates to reflect only event messages which are associated as an alarm.

20. Create and print a listing of the event archive files listed in the current events directory, and the file sizes for each file.

a. Invoke Netscape

b. % cd /usr/local/netscape

c. % cd netscape

d. % netscape

e. % http://fosoeXoe/FosDbhome.html IP Address = 198.118.199.20

f. Submit a FOS Event History request, and save as a file.

g. Print Event History request.

21. Print the event archive and verify the following:

a. All events generated via the event driver are archived and event messages are not compromised by the archive process.

b. Event messages pertaining to MSS reconfigurations are contained within the archive.

22. Stop all processes on the server and workstation and log off to end the test.

note: 11/12/96, “ground system” and “instrument” can be filtered by using the subsystem filtering option. It is all inclusive. (subsystem, ground station and instrument are under one filtering option)

note: 11/13/96, Filtering on “alarm” can only be done through Netscape, It is not an option in Events Display

Test No.: EVT 2020A

Test Title: Event History Request

Test Configuration: See Appendix G

Test Support: Real-Time Server, Data Server, UserStation. Netscape, Event History data.

Test Description:

This test is designed to verify the ability to retrieve all event messages, from the event archive, by specifying start/stop time, event type, event identifier, spacecraft identifier, and instrument identifier. This test will also verify the ability to filter retrieved events according to time, event types, event identifiers, spacecraft identifiers, and instrument identifiers. Events in the archive are retrieved and viewed through the use of Netscape. Following initialization of the EOC, Netscape is invoked from the console window. The Netscape page containing the event history data base is brought up and event history is accessed through the use of an event history access form. All necessary data is entered into the form and then submitted. An event history is returned and it is verified that this event history matches the user's request. The event history form is accessed again and different times, subsystems, and ID numbers are submitted. The last portion of this test involves submitting an illegal request (i.e. invalid event ids, times not in the archive, etc.).

Success Criteria:

This test is considered successful when all events in the archive are able to be retrieved; The user is able to specify start/stop times, event types, event ID, spacecraft ID, and instrument ID in the request; Event messages are retrieved in chronological order; Events being retrieved can be filtered; Event history request are stored for future use.

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: source A2_DataServerStartup *(wait for script completion)*

note : Script is complete when the user gets the following message in the terminal window:

'Successful installation of signal handler'

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL > **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup *(wait for script completion)***

   note: Script is complete when the user gets the following event message:

   'String 100 was created.'

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG=MIRROR**

   note : wait to receive the following event message:

   'Successfully connected to string 100'.

7. Make a printout of the Sybase table containing the event archive to be used for comparisons by entering the following Unix commands in a terminal window.

   %: **bcp am1_fos_ops..fos_event_archive out events.out -c -Ufos_dba**

   -Pfos_dba

   %: **lp events.out**

8. Invoke Netscape and access the Web page containing the FOS Database Access.

a. Open a terminal window at the user workstation and enter the following:

%: **netscape**

b. Type the following address in the Location line at the top of the Netscape screen. This address is case sensitive:

> **http: //198.118.199.20/FosDbHome.html**

c. Click the mouse on FosDbHome page in the bookmarks pull-down menu option.

d. Verify that the FOS Database Access Page is displayed.

9. Access the event history form.

a. Under the integration and test databases, click the mouse on ‘FOS event history database’.

b. Verify that the event history form is displayed. This form contains fields for the user to submit a request based upon the following:

start/stop times

event type

event identifier

spacecraft identifier

instrument (subsystem) identifier

10. Submit a event message history request to view all events in the database.

a. Leave the form blank and click the mouse on the ‘Submit’ button.

b. Verify the following by comparing the Netscape display with the printout of the Sybase table:

(1) The event messages displayed match the user’s request.

(2) The number of event messages is consistent with the number of event messages in the Sybase table.

(3) The events are received in chronological order.

c. Click the mouse on the ‘Back’ button to display the event history request form.

11. Submit a event message history request to view all events in a specified time frame.

a. Enter the following in the FOS time stamp field:

> 1996:171:14:00:00 to 1996:171:15:00:00….or Current time of test.

b. Click the mouse on the ‘Submit’ button.

c. Verify the following by comparing the Netscape display with the printout of the Sybase table:

   (1) The event messages displayed match the user's request.

   (2) The number of event messages is consistent with the number of event messages in the Sybase table.

   (3) The events are received in chronological order.

d. Click the mouse on the 'Back' button to display the event history request form.

12. Submit a event message history request to view all events of a specified event type.

   a. Click the mouse on the 'Clear Form' button.

   b. Click the mouse on the event type button and select FOS.

   c. Verify that a list of event types is displayed. This list includes the following:

ANA	PAS
CMD	RCM
CMS	RMS
DMS	SYS
FUI	TLM

   d. Select the 'CMD' option.

   e. Click the mouse on the 'Submit' button.

   f. Verify the following by comparing the Netscape display with the printout of the Sybase table:

      (1) The event messages displayed match the user's request.

      (2) The number of event messages is consistent with the number of event messages in the Sybase table.

      (3) The events are received in chronological order.

   g. Click the mouse on the 'Back' button to display the event history request form.

13. Save the event request.

   a. Click the mouse on the 'File' menu button.

   b. Click the mouse on 'Save as…'.

   c. Click the mouse on the Format field.

   d. Click the mouse on 'Text'.

e. Enter the following in the Selection field:

> **> /home/fostest/evtreq1.csh**

f. Click the mouse on 'OK'.

14. Verify that the request was saved.

a. Enter the following from a console window:

%: **more evtreq1.csh**

b. Verify that the event request displayed matches the event request previously saved.

15. Submit a event message history request to view all events of a specified severity.

a. Click the mouse on the 'Clear Form' button.

b. Click the mouse on the down arrow in the severity field.

c. Verify that a list of severities is displayed. This list includes the following:

Fatal
Alarm
Warning
Info

d. Select the 'Alarm' option.

e. Click the mouse on the 'Submit' button.

f. Verify the following by comparing the Netscape display with the printout of the Sybase table:

(1) The event messages displayed match the user's request.

(2) The number of event messages is consistent with the number of event messages in the Sybase table.

(3) The events are received in chronological order.

g. Click the mouse on the 'Back' button to display the event history request form.

16. Submit a event message history request to view all events of a specified Event ID. Event IDs and the subsystems that they are associated with are contained in the FOS database

a. Click the mouse on the 'Clear Form' button.

b. Enter the following into the FOS Event ID # field:

> **XXXX**

c. Click the mouse on the 'Submit' button.

d. Verify the following by comparing the Netscape display with the printout of the Sybase table:

(1) The event messages displayed match the user's request.

(2) The number of event messages is consistent with the number of event messages in the Sybase table.

(3) The events are received in chronological order.

e. Click the mouse on the 'Back' button to display the event history request form.

17. Submit a event message history request to view all events of a specified spacecraft ID.

a. Click the mouse on the 'Clear Form' button.

b. Click the mouse on the down arrow in the Spacecraft field.

c. Verify that a spacecraft list is displayed.

d. Click the mouse on 'AM-1'.

e. Click the mouse on the 'Submit' button.

f. Verify the following by comparing the Netscape display with the printout of the Sybase table:

(1) The event messages displayed match the user's request.

(2) The number of event messages is consistent with the number of event messages in the Sybase table.

(3) The events are received in chronological order.

g. Click the mouse on the 'Back' button to display the event history request form.

18. Submit a event message history request to view all events of a specified instrument ID.

a. Click the mouse on the 'Clear Form' button.

b. Click the mouse on the down arrow in the Subsystem field.

c. Verify that a subsystem/instrument list is displayed. This list includes the following:

ASTER	GNC
CERES-A	MISR
CERES-F	MOPITT
CDH	PMS
COM	SMS
EAS	TCS
EPS	MODIS

d. Click the mouse on ‘COM’.

e. Click the mouse on the ‘Submit’ button.

f. Verify the following by comparing the Netscape display with the printout of the Sybase table:

(1) The event messages displayed match the user’s request.

(2) The number of event messages is consistent with the number of event messages in the Sybase table.

(3) The events are received in chronological order.

g. Click the mouse on the ‘Back’ button to display the event history request form.

19. Submit a event message history request to view all events of a specified subsystem.

a. Click the mouse on the ‘Clear Form’ button.

b. Click the mouse on the down arrow in the Subsystem field.

c. Verify that a subsystem/instrument list is displayed.

d. Click the mouse on ‘CDH’. **** Note * This has an NCR written against it***.

e. Click the mouse on the ‘Submit’ button.

f. Verify the following by comparing the Netscape display with the printout of the Sybase table:

(1) The event messages displayed match the user’s request.

(2) The number of event messages is consistent with the number of event messages in the Sybase table.

(3) The events are received in chronological order.

g. Click the mouse on the ‘Back’ button to display the event history request form.

20. Submit a event message history request to view all events of a specified event type and time.

a. Click the mouse on the ‘Clear Form’ button.

b. Click the mouse on the down arrow in the Event Type field.

c. Verify that a list of event types is displayed.

d. Click the mouse on ‘PAS’.

e. Enter the following in the FOS time stamp field:

> 1996:171:14:00:00 to 1996:172:01:00:00 or Current time.

f. Click the mouse on the ‘Submit’ button.

g. Verify the following by comparing the Netscape display with the printout of the Sybase table:

(1) The event messages displayed match the user’s request.

(2) The number of event messages is consistent with the number of event messages in the Sybase table.

(3) The events are received in chronological order.

h. Click the mouse on the ‘Back’ button to display the event history request form.

21. Submit a event message history request supplying all fields in the event history form.

a. Click the mouse on the ‘Clear Form’ button.

b. Click the mouse on the down arrow in the Spacecraft field.

c. Verify that a spacecraft list is displayed.

d. Click the mouse on ‘AM-1’.

e. Click the mouse on the down arrow in the Subsystem field.

f. Verify that a subsystem/instrument list is displayed.

g. Click the mouse on ‘COM’.

h. Click the mouse on the down arrow in the FOS Event type field.

i. Verify that a list of event types is displayed.

j. Click the mouse on ‘RMS’.

k. Click the mouse on the down arrow in the Severity field.

l. Verify that a list of severities is displayed.

m. Click the mouse on ‘Fatal’.

n. Enter the following in the FOS time stamp field:

> 1996:171:14:00:00 to 1996:171:15:00:00 or Current time.

o. Click the mouse on the ‘Submit’ button.

p. Verify the following by comparing the Netscape display with the printout of the Sybase table:

(1) The event messages displayed match the user’s request.

(2) The number of event messages is consistent with the number of event messages in the Sybase table.

(3) The events are received in chronological order.

q. Click the mouse on the ‘Back’ button to display the event history request form.

22. Submit a event message history request to view all events of an illegal Event ID.

    a. Click the mouse on the ‘Clear Form’ button.

    b. Enter the following into the FOS Event ID # field:

       > **9999**

    c. Click the mouse on the ‘Submit’ button.

    d. Verify that there were no events found with this event ID:

    e. Click the mouse on the ‘Back’ button to display the event history request form.

23. Submit a event message history request to view all events of an illegal time span.

    a. Click the mouse on the ‘Clear Form’ button.

    b. Enter the following into the FOS Time Stamp field:

       > **1996:171:15:00:00 to 1996:171:14:00:00**

    c. Click the mouse on the ‘Submit’ button.

    d. Verify that there were no events found in this time span.

    e. Click the mouse on the ‘Back’ button to display the event history request form.

24. Submit a event message history request to view all events with a certain event message

    a. Click the mouse on the ‘Clear Form’ button.

    b. Enter the following into the FOS Event Message field:

       > **I am not a real event**

    c. Click the mouse on the ‘Submit’ button.

    d. Verify that there were no events found containing this message:

    e. Click the mouse on the ‘Back’ button to display the event history request form.

25. Submit a event message history request with a time span outside of the archive.

    a. Click the mouse on the ‘Clear Form’ button.

    b. Enter the following into the FOS Time Stamp field:

       > **1996:175:10:00:00 to 1996:175:14:00:00 or Future time.**

    c. Click the mouse on the ‘Submit’ button.

    d. Verify that there were no events found in this time span.

26. Exit Netscape and log off of all workstations.

END TEST

<u>Procedure to clear out Event Archive Messages.</u>

1. isql -Ufos_dba -Pfos_dba
2. use am1.fos.ops
3. go.
4. delete fos_event_archive
5. go
6. exit.

Test No.: FUI 2000A

Test Title: Control Window Manipulation

Test Configuration: See Appendix G

Test Support: An events driver used to generate event messages.

Test Description:

This test is designed to verify additional capabilities related to the control and management of the user station desktop environment (see also test FUI 2080A) including the three-line event area display and capabilities relating to room and window assignments using room/window lists. This test starts with the initialization of the EOC. Following initialization rooms are selected for display via a menu-driven list of rooms. The rooms is then modified by changing the size, location, and focus of the existing windows. The event driver is invoked, resulting in event messages broadcast onto the FOS LAN. The three most recent events are displayed in the event message section of the Control window, and specific event types (i.e. telemetry, command, etc.) are filtered from appearing at the three-line event area.

Success Criteria:

This test is considered successful when the user has access, through the control window, to a list of available rooms, windows, procedures, and tools; The Control window contains a command line area that allows the user to issue directives; The 20 most recent command line inputs are available for display and editing; Windows in the room may be modified by use of the mouse; The three-line event area displays the most recent three event messages only, in UTC order; Three-line event filtering matches the filter options selected by the user; Three line event area selections affect only the user station where the filtering is performed. All three line event area filtering affects the three-line event area only.

Procedure:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: ********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

note: Script is complete when the user gets the following message in the terminal window:

'Successful installation of signal handler'

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL > **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: ********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   note: Script is complete when the user gets the following event message:

   'String 100 was created.'

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG=MIRROR**

   note: Wait to receive the following event message:

   'Successfully connected to string 100'.

7. Verify that the Control window is displayed. This Window contains the following:

   a. A line to enter ECL directives

   b. An area to display and manipulate event messages

   c. Various buttons to display rooms, windows, tools, and procedures

8. Open a room.

   a. Click the Rooms button on the Control window.

b. Verify the Room selection window has appeared.

c. Select UserEventRoom.

d. Click OK

e. Verify the selection window closing and the room opening with an Events Display window and a Control window present.

9. Change the window focus in this room.

   a. Click the mouse on Events Display window.

   b. Verify that the window clicked on is highlighted, signifying that it is the focused window.

10. Change the appearance of the room by moving windows.

    a. Click and hold the mouse on the top of each window. Drag the window to the desired location in the room.

    b. Verify that the window has now moved to the new location.

11. Change the size of the Events Display. (Control window should not resize)

    a. Click the mouse on the right edge of the window and drag it to a desired size.

    b. Verify that the size of the window has changed to the desired size.

    c. Click the mouse on the left edge of the window and drag it to a desired size.

    d. Verify that the size of the window has changed to the desired size.

    e. Click the mouse on the bottom edge of the window and drag it to a desired size.

    f. Verify that the size of the window has changed to the desired size.

    g. Click the mouse on the bottom right corner of the window and drag it to a desired size.

    h. Verify that the size of the window has changed to the desired size.

    i. Click the mouse on the bottom left corner of the window and drag it to a desired size.

    j. Verify that the size of the window has changed to the desired size.

12. Iconify each of the windows in the room.

    a. Click the mouse on the dot in the upper right corner of each window.

    b. Verify that the window is iconified and is still visible to the user.

13. Double click the mouse on the iconified window.

    a. Verify that the window associated with that icon is opened up.

14. Close each of the windows in the room except the Control window.
    a. Double click the button in the top left corner of the window.
    b. Verify that the selected window is no longer present in the room.
15. Open the Event Display window.
    a. Go to the Control window and select the TOOLS button.
    b. From the dialog box, select the Events_Display option and click OK.
    c. Verify the Event Display window opening.
16. Open another room.
    a. Click the Rooms button on the Control window.
    b. Verify the Room selection window has appeared.
    c. Select UserLoadRoom.
    d. Click OK
    e. Verify the selection window closing and the room opening with Load Manager window and a Control window present.
17. Change the window focus in this room.
    a. Click the mouse on Load Manager window.
    b. Verify that the window clicked on is highlighted, signifying that it is the focused window.
18. Change the appearance of the room by moving windows.
    a. Click and hold the mouse on the top of each window. Drag the window to the desired location in the room.
    b. Verify that the window has now moved to the new location.
19. Change the size of the Load Manager window. (Control window should not resize)
    a. Click the mouse on the right edge of the window and drag it to a desired size.
    b. Verify that the size of the window has changed to the desired size.
    c. Click the mouse on the left edge of the window and drag it to a desired size.
    d. Verify that the size of the window has changed to the desired size.
    e. Click the mouse on the bottom edge of the window and drag it to a desired size.
    f. Verify that the size of the window has changed to the desired size.

g. Click the mouse on the bottom right corner of the window and drag it to a desired size.

h. Verify that the size of the window has changed to the desired size.

i. Click the mouse on the bottom left corner of the window and drag it to a desired size.

j. Verify that the size of the window has changed to the desired size.

20. Iconify each of the windows in the room.

    a. Click the mouse on the dot in the upper right corner of each window.

    b. Verify that the window is iconified and is still visible to the user.

21. Double click the mouse on the iconified window.

    a. Verify that the window associated with that icon is opened up.

22. Close each of the windows in the room except the Control window.

    a. Double click the button in the top left corner of the window.

    b. Verify that the selected window is no longer present in the room.

23. Open the Load Manager window.

    a. Go to the Control window and select the TOOLS button.

    b. From the dialog box, select the Load Manager option and click OK.

    c. Verify the Load Manager window opening.

24. Enter, in the command line, the following ECL directives.

    (Press "*Enter*" *after each entry. Verify and close an error dialog box for each entry.)*

    ECL> **number 1**

    ECL> **number 2**

    ECL> **number 3**

    ECL> **number 4**

    ECL> **number 5**

    ECL> **number 6**

    ECL> **number 7**

    ECL> **number 8**

    ECL> **number 9**

ECL> **number 10**

ECL> **number 11**

ECL> **number 12**

ECL> **number 13**

ECL> **number 14**

ECL> **number 15**

ECL> **number 16**

ECL> **number 17**

ECL> **number 18**

ECL> **number 19**

ECL> **number 20**

ECL> **number 21**

25. Retrieve and display the 20 most recent input lines for modification and resubmission.

    a. Click the mouse on the down arrow button next to the command line display.

    b. Verify that the list of the most recent ECL directives shown matches the entered ECL directives in the previous step.

    c. Verify that there are 20 ECL directives shown.

26. Make modifications to a sample number of the 20 most recently recalled directives and enter for re-submission and processing.

    a. From the displayed directive list, click on the directive ‘number 5’.

    b. Verify that the selected directive moves to the command line.

    c. Edit the directive to read the following:

    (*Press “Enter” after the entry. Verify and close an error dialog box.*)

    ECL> **number 22**

    d. Click the mouse on the down arrow button next to the command line display.

    e. Verify that the directive entered in the command line matches the directive displayed in the 20 most recent directives.

    f. Verify that the directive entered is in the correct order in the list of the 20 most recent directives.

    g. From the displayed directive list, click on the directive ‘number 10’.

h. Verify that the selected directive moves to the command line.

i. Edit the directive to read the following:

(*Press "Enter" after the entry. Verify and close an error dialog box.*)

ECL> **number 23**

j. Click the mouse on the down arrow button next to the command line display.

k. Verify that the directive entered in the command line matches the directive displayed in the 20 most recent directives.

l. Verify that the directive entered is in the correct order in the list of the 20 most recent directives.

m. From the displayed directive list, click on the directive 'number 18'.

n. Verify that the selected directive moves to the command line.

o. Edit the directive to read the following:

(*Press "Enter" after the entry. Verify and close an error dialog box.*)

ECL> **number 24**

n. Click the mouse on the down arrow button next to the command line display.

o. Verify that the directive entered in the command line matches the directive displayed in the 20 most recent directives.

p. Verify that the directive entered is in the correct order in the list of the 20 most recent directives.

27. Invoke a room that displays the Event Display window.

a. Click the mouse on the 'Rooms…' button.

b. Verify that the Rooms Dialog window along with a list of available rooms is displayed.

28. Click the mouse on 'UserEventRoom'.

29. Verify that the Events Display window is displayed. This room contains the Control and Event Display windows.

30. Initiate the DMS event message driver which is designed to generate event messages for display. This must be performed on the User Station within the terminal that executed the startup scripts. Enter the following UNIX commands:

%: **source FosEnvVars**

%: **setenv SCRIPT UserStation**

%: **setenv FOS_SERVICES /fos/test/am1/data/<*work station name*>. (Press the Esc key.)**

("fos-sevices" should be appended to the end of the script)

%: **cd /fos/test/am1/bin/sun_sparc_5-4**

%: **FdEvEventDriver**

a. Verify that the three most recent event messages are displayed to the user in the Control window. These three event messages should match the three most recent in the Event Display window.

31. From the Events Display window, invoke the filter capability to filter the event messages by event type.

    a. Click the mouse on the 'Filter…' button.

    b. Verify that the Filter Types window is displayed.

32. Select only TLM event messages to be displayed.

    a. Click the mouse on the 'None' button to clear the filter selections under the subsystems and events type.

    b. Click the mouse on the 'Show' button next to TLM to show only TLM events.

    c. Click the mouse on the 'Apply' button.

    d. Enter the following from the Events Driver terminal window:

        %: **!!**

    e. Verify that only TLM event messages are displayed in the Control window.

33. Select only CMD event messages to be displayed.

    a. Click the mouse on the 'None' button to clear the filter selections.

    b. Click the mouse on the 'Show' button next to CMD to show only CMD events.

    c. Click the mouse on the 'Apply' button.

    d. Enter the following from the Events Driver terminal window:

        %: **!!**

    e. Verify that only CMD event messages are displayed in the Control window.

34. Select only CMS event messages to be displayed.

    a. Click the mouse on the 'None' button to clear the filter selections.

    b. Click the mouse on the 'Show' button next to CMS to show only CMS events.

c. Click the mouse on the ‘Apply’ button.

d. Enter the following from the Events Driver terminal window:

%: **!!**

e. Verify that only CMS event messages are displayed in the Control window.

35. Select only DMS event messages to be displayed.

a. Click the mouse on the ‘None’ button to clear the filter selections.

b. Click the mouse on the ‘Show’ button next to DMS to show only DMS events.

c. Click the mouse on the ‘Apply’ button.

d. Enter the following from the Events Driver terminal window:

%: **!!**

e. Verify that only DMS event messages are displayed in the Control window.

36. Select only FUI event messages to be displayed.

a. Click the mouse on the ‘None’ button to clear the filter selections.

b. Click the mouse on the ‘Show’ button next to FUI to show only FUI events.

c. Click the mouse on the ‘Apply’ button.

d. Enter the following from the Events Driver terminal window:

%: **!!**

e. Verify that only FUI event messages are displayed in the Control window.

37. Select only RCM event messages to be displayed.

a. Click the mouse on the ‘None’ button to clear the filter selections.

b. Click the mouse on the ‘Show’ button next to RCM to show only RCM events.

c. Click the mouse on the ‘Apply’ button.

d. Enter the following from the Events Driver terminal window:

%: **!!**

e. Verify that only RCM event messages are displayed in the Control window.

38. Select only RMS event messages to be displayed.

a. Click the mouse on the ‘None’ button to clear the filter selections.

b. Click the mouse on the ‘Show’ button next to RMS to show only RMS events.

c. Click the mouse on the ‘Apply’ button.

d. Enter the following from the Events Driver terminal window:

   %: **!!**

e. Verify that only RMS event messages are displayed in the Control window.

39. Select only ANL event messages to be displayed.

    a. Click the mouse on the ‘None’ button to clear the filter selections.

    b. Click the mouse on the ‘Show’ button next to ANL to show only ANL events.

    c. Click the mouse on the ‘Apply’ button.

    d. Enter the following from the Events Driver terminal window:

       %: **!!**

    e. Verify that only ANL event messages are displayed in the Control window.

40. Select only PAS event messages to be displayed.

    a. Click the mouse on the ‘None’ button to clear the filter selections.

    b. Click the mouse on the ‘Show’ button next to PAS to show only PAS events.

    c. Click the mouse on the ‘Apply’ button.

    d. Enter the following from the Events Driver terminal window:

       %: **!!**

    e. Verify that only PAS event messages are displayed in the Control window.

41. Select only SYS event messages to be displayed.

    a. Click the mouse on the ‘None’ button to clear the filter selections.

    b. Click the mouse on the ‘Show’ button next to SYS to show only SYS events.

    c. Click the mouse on the ‘Apply’ button.

    d. Enter the following from the Events Driver terminal window:

       %: **!!**

    e. Verify that only SYS event messages are displayed in the Control window.

42. This concludes the test.

Test No.: FUI 2005A

Test Title: ECL Directives

Test Configuration: See Appendix G

Test Support: Previously created ALPHA1 display page, Aster display page, and BETA1 proc

Test Description:

This test is designed to verify the ability to input and syntax FOS Release A ECL directives from the command line at EOC user stations. Response message output and specific actions taken as a result of directive input will be verified by viewing response line and event display areas of the display screens.

In cases where the FOS system functionality is not mature enough to completely execute a particular ECL directive, testing is performed to confirm that the ECL directive has been defined, can be entered at the ECL command line and syntax checked.

Success Criteria:

This test is considered successful when all ECL directives entered are verified for syntax and that a syntax error is displayed for all ECL directives that are entered incorrectly; incorrectly entered directives are not executed; all ECL directives entered are verified for the appropriate user privileges prior to execution; ECL directives that are entered without the appropriate user privileges are not executed and result in an error message being displayed at the user workstation; all ECL directive entries, regardless of syntax or privileges are displayed in the event history window with the appropriate time tag, event type, event ID, and event message.

For ECL directives that completely execute in release A, the responding subsystem will carry out the directive execution and provide a response that is displayed at the user workstation event history window.

Procedure:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: ************

   Password: ************

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: ********

   %: **cd /fos/test/am1/scripts/setup**

%: **source A2_DataServerStartup** *(wait for script completion)*

note: Script is complete when the user gets the following message in the terminal window:

'Successful installation of signal handler'

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL > **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: ********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   note : Script is complete when the user gets the following event message:

   'String 100 was created.'

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG=MIRROR**

   note : Wait to receive the following event message:

   'Successfully connected to string 100'.

7. Verify that the Control window is displayed. This Window contains the following:

   a. A line to enter ECL directives

   b. An area to display and manipulate event messages

   c. Various buttons to display rooms, windows, tools, and procedures

8. Invoke the Event Display window by entering the following ECL directive.

ECL: **TOOL Event_Display**

a. Verify that the Event Display window is displayed.

9. At the Control Window command line enter the ECL directive to turn Command Verification on and off.

ECL> **CV ON**

ECL> **CV OFF**

a. Verify the user receives an event response message confirming the input of the directive and command verification on/off.

10. Enter the command verification directive with a known syntax error.

ECL> **CV OUT**

a. Verify that the user receives an event response message stating that the input directive resulted in a syntax error.

11. Enter the PAGE ECL directive to manipulate the control/display of windows.

ECL> **PAGE ALPHA1**

ECL> **PAGE ICONIFY ALPHA1**

ECL> **PAGE RESTORE ALPHA1**

ECL> **PAGE CLOSE ALPHA1**

a. Verify that an event response message is generated confirming that the directive has been entered.

b. Enter random misspellings of the above page keywords and verify that the input results in a syntax error message at the user workstation

12. Enter the PAGE ECL directive with page names that do not exist (i.e. have not been defined in the system).

ECL> **PAGE ALPHA2**

a. Verify that the ECL directive is accepted and the user receives an event message reporting that the specified pagename is not defined etc.

13. Enter the TOOL ECL directive at the user workstation to activate the FUI provided tools.

ECL> **TOOL Analysis_Request_Builder**

ECL> **TOOL Display_Builder**

ECL> **TOOL Load_Manager**

ECL> **TOOL Procedure_Builder**

ECL> **TOOL Room_Builder**

ECL> **TOOL Table_Load_Builder**

a. Verify the ECL directives are accepted, the tool window opens, and an event message is received at the user workstation acknowledging input of the directives.

b. Close each window by double clicking on the top left button of each tool window.

14. Enter the TOOL ECL directive at the user workstation for a tool that has not been defined/does not exist.

ECL> **TOOL Command_Request**

a. Verify that the directive is accepted from a syntax stand-point but, returns an error message stating that the tool requested is undefined.

15. Enter the START ECL directive to start and existing procedure.

ECL> **START BETA1**

a. Verify that the ECL directive input is accepted and event response messages are received at the user workstation confirming input of the directive.

b. Enter a random misspelling of the above ECL directives and verify that a syntax error is displayed at the user workstation.

16. Enter the STRING ECL directive for the purpose of connecting to an existing string.

ECL> **STRING CONNECT STRING=100**

TLMTYPE=STANDBY CONFIG=MIRROR

a. Verify that the ECL directive is accepted and an event response message is displayed confirming the connection at the requesting workstation.

b. Enter a random misspelling of the above ECL directives and verify that a syntax error is displayed at the user workstation.

17. Enter the TAKE ECL directive for the purpose of acquiring the command privilege.

ECL> **TAKE COMMAND STRING=100**

a. Verify that the ECL directive is accepted and an event response message is displayed confirming command privilegdes at the requesting workstation.

b. Enter a random misspelling of the above ECL directives and verify that a syntax error is displayed at the user workstation.

18. Enter the TOOL ECL directive at the user workstation to activate the Command Control tool.

ECL> **TOOL Command_Control**

String = 100

Spacecraft ID = **AM1**

19. Enter the EXPERTADVISOR ECL directive to enable or disable the expert advisor.

ECL> **EXPERTADVISOR ENABLE HOST=foseoc6**

SPACECRAFTID=AM1 EA_CHANNEL=1

ECL> **EXPERTADVISOR DISABLE**

a. Verify the ECL directive is accepted and an event response message is displayed confirming the user request.

b. Enter a random misspelling of the above ECL directives and verify that a syntax error is displayed at the user workstation.

20. Enter the GCMR ECL directive to generate GCMR test messages to the NCC.

ECL> **GCMR SWEEP LINK=MA**

ECL> **GCMR EIRPRECONFIG LINK=SSA1 POWER=HIGH**

ECL> **GCMR EXPAND LINK=SSA1**

a. Verify the ECL directive is accepted and an event response message is displayed at the user workstation confirming the generation of the GCMR.

b. Enter a random misspelling of the above ECL directives and verify that a syntax error is displayed at the user workstation.

21. This concludes the test.

Test No.: FUI 2010A

Test Title: PROC Builder

Test Support: Previously created ALPHA1 display page, Aster display page, and TOOL displays

Test Description:

This test will verify the ability to create, edit, store, print, delete, and syntax check ECL-based PROCs. The test will verify the validate status display also. The test begins with the initialization of the EOC to support PROC processing. When the PROC Builder tool is invoked, several PROCs are generated according to a specified PROC type (e.g., emergency, command, ground, local, activity, and user-defined). The PROCs are saved by a specified spacecraft, instrument, or spacecraft-instrument name. The next set of steps involves the editing of several previously defined PROCs. Standard editing options will include cut, copy, paste text, delete text, insert text, search/replace, and insert an existing PROC. The Directive Builder tool will also function as an editing mechanism. This procedure will include the verification of various constructs and operator functions within a PROC. The test will also cover the printing capabilities of PROCs.

Success Criteria:

Success is measured on the ability to open and create new PROCs through the use of the Procedure Builder and Directive Builder; to insert directives, conditional constructs, iterative loops, and operator functions into a procedure; to store PROCs by type, spacecraft, and/or instrument; to execute syntax checking; and to print procedures.

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: ********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

   note: Script is complete when the user gets the following message in the terminal window:

‘Successful installation of signal handler’

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL > **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: ********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   note: Script is complete when the user gets the following event message:

   ‘String 100 was created.’

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING** CONNECT STRING=100 TLMTYPE=HEALTH CONFIG=MIRROR

   note: Wait to receive the following event message:

   ‘Successfully connected to string 100’.

7. Verify that the Control window is displayed. This Window contains the following:

   a. A line to enter ECL directives

   b. An area to display and manipulate event messages

   c. Various buttons to display rooms, windows, tools, and procedures

8. Activate the Procedure Builder.

   a. Enter the following directive from the control window.

      ECL>**TOOL Procedure_Builder**

b. Verify the Procedure Builder window display. This window will contain the following:

(1) A menu bar with four pull down menus; File, Edit, Tools, and Help

(2) An Identification line with the Procedure File Name and Procedure Type

(3) A scrolling text area

(4) A status message line

(5) A Go To text input field

(6) Two status indication buttons and text fields, Validate and Check Syntax

9. Open a new file.

a. Select the File pull down menu.

b. Select the New option to open a template file.

c. Verify the blank template.

10. Delete the following by using the cursor to high light the text and pressing the delete key:

#

 # INSERT ECL DIRECTIVES HERE

#

(*The cursor should be flashing on a blank line within the scrolling text area.*)

11. Insert a directive keyword into the scrolling text area.

a. Select the Tool pull down menu.

b. Select the Directive Builder option.

c. Verify the Directive Builder window display. This window will contain the following:

(1) An ECL text field

(2) Directive keywords text field and list box

(3) Subsystems list box with Filter button and selection buttons; All and None

(4) Cmds (Commands) and Tlms (Telemetry) selection buttons, text field and list box.

(5) Selection Template list box

(6) Status message line

(7) Control button selections; OK, Apply, Cancel, and Help

d. Use the mouse pointer and select the Cmds button.

e. Single click on the Filter button under the Subsystem list box.

f. Verify that spacecraft and instrument names are in the Subsystem list box.

g. Filter on the following:

AM1_CDH

h. Click on Select and then OK.

i. Verify the Filter window closing and the filter selection appears in the filter box within the Directive Builder window.

j. Click the toggle button for AM1_CDH.

k. Verify that the Cmds/Tlms list box contains command directives.

l. Single click on the following command directive.

CDH_DISABLE_CT1TMFB

m. Verify that the qualifiers of the directive appear in the Selection Template list box.

n. Double click on CDH_DISABLE_CT1TMFB in the Cmds/Tlms list box.

o. Verify that the directive is inserted into the ECL text field.

p. Double click the following item in the Selection Template list box.

TO 32767 0 0

q. Verify that the following is appended to the command in the ECL text field.

TO =

r. Edit the ECL text field by entering the following:

6700

s. Click the OK push button.

t. Verify that the Directive Builder window closes and the following contents of the ECL field are inserted into the scrolling text area of the Procedure Builder window.

CDH_DISABLE_CT1TMFB TO = 6700

12. Invoke the Check Syntax and Validate control buttons.

a. Verify the status as PASS (Green) in the syntax text field.

b. Verify the status as ???? (Yellow) in the validate text field.

c. Verify the following statement on the status message line.

Syntax Verified.

13. Edit ‘PROC xxxx()’and ‘END PROC xxxx’ with the following respectively:

    PROC CMDPROC1()

    END PROC CMDPROC1

14. Invoke the Check Syntax and Validate control buttons.

    a. Verify the status as PASS (Green) in the syntax text field.

    b. Verify the status as ???? (Yellow) in the validate text field.

    c. Verify the following statement on the status message line:

       Syntax Verified.

15. Select the Procedure Type.

    a. Invoke the Procedure Type button and select the Command option.

    b. Verify that Command is inserted as the Procedure Type.

16. Save the file.

    a. Select the File pull down menu.

    b. Select the Save As option.

    c. Click on the ‘System Dir.’ selection button.

    d. Verify the default file path directory as the following:

       /fos/test/am1/procs/

    e. Insert the following File name into the Selection field.

       AM1_AST_CMDPROC1

    f. Invoke the OK button.

    g. Verify that the selection window closes.

17. Exit Procedure Builder from the File pull down menu by selecting Quit.

18. Activate the Procedure Builder.

    a. Enter the following directive from the control window.

       ECL>**TOOL Procedure_Builder**

    b. Verify the Procedure Builder window display. This window will contain the following:

       (1) A menu bar with four pull down menus; File, Edit, Tools, and Help

(2) An Identification line with the Procedure File Name and Procedure Type

(3) A scrolling text area

(4) A status message line

(5) A Go To text input field

(6) Two status indication buttons and text fields, Validate and Check Syntax

19. Open a new file.

a. Select the File pull down menu.

b. Select the New option to open a template file.

c. Verify the blank template.

20. Delete the following by using the cursor to high light the text and pressing the delete key:

#

 # INSERT ECL DIRECTIVES HERE

#

(*The cursor should be flashing on a blank line within the scrolling text area.*)

21. Insert a directive keyword into the scrolling text area.

a. Select the Tool pull down menu.

b. Select the Directive Builder option.

c. Verify the Directive Builder window display. This window will contain the following:

(1) An ECL text field

(2) Directive keywords text field and list box

(3) Subsystems list box with Filter button and selection buttons; All and None

(4) Cmds (Commands) and Tlms (Telemetry) selection buttons, text field and list box.

(5) Selection Template list box

(6) Status message line

(7) Control button selections; OK, Apply, Cancel, and Help

d. Enter the following text into the Directive Keywords text field and press the Enter key.

NCC

e. Verify the directive keyword is appears as the first keyword in the list box.

f. Single click on the directive keyword, NCC in the list box.

g. Verify that the qualifiers of the directive appear in the Selection Template list box.

h. Double click on the directive keyword, NCC in the list box.

i. Verify that the directive is inserted into the ECL text field.

j. Double click the following item in the Selection Template list box.

COMMTEST

k. Verify that the item is inserted into the ECL text field.

l. Click the APPLY push button.

m. Verify that the Directive Builder window remains open and the following contents of the ECL field are inserted into the scrolling text area of the Procedure Builder.

NCC COMMTEST

22. Insert another directive keyword into the scrolling text area.

a. Verify the cursor is on a blank line following the preceding inserted directive.

b. Enter the following text into the Directive Keywords text field and press the Enter key.

TAKE

c. Verify the directive keyword appears as the first keyword in the list box.

d. Single click on the directive keyword, TAKE in the list box.

e. Verify that the qualifiers of the directive appear in the Selection Template list box.

f. Double click on the directive keyword, TAKE in the list box.

g. Verify that the directive is inserted into the ECL text field.

h. Double click the following item in the Selection Template list box.

<COMMAND | GROUNDCONTROL>

i. Verify that the item is inserted into the ECL text field.

j. Edit the text by deleting the following:

<COMMAND | >

k. Click the APPLY push button.

l. Verify that the Directive Builder window remains open and the following contents of the ECL field are inserted into the scrolling text area of the Procedure Builder.

TAKE GROUNDCONTROL

23. Insert another directive keyword into the scrolling text area.

    a. Verify the cursor is on a blank line following the preceding inserted directive.

    b. Enter the following text into the Directive Keywords text field and press the Enter key.

    RCCONFIG

    c. Verify the directive keyword appears as the first keyword in the list box.

    d. Single click on the directive keyword, RCCONFIG in the list box.

    e. Verify that the qualifiers of the directive appear in the Selection Template list box.

    f. Double click on the directive keyword, RCCONFIG in the list box.

    g. Verify that the directive is inserted into the ECL text field.

    h. Double click the following item in the Selection Template list box.

    [SOURCE=<sourceid>] [USER=<userid>]

    [DESTINATION=<destinationid>] [SUPPORT=<supportid>]

    i. Verify that the item is inserted into the ECL text field.

    j. Edit the ECL text field by replacing <sourceid> with 1 and deleting the following:

    [ ] [USER=<userid>] [DESTINATION=<destinationid>]

    [SUPPORT=<supportid>]

    k. Click the APPLY push button.

    l. Verify that the Directive Builder window remains open and the following contents of the ECL field are inserted into the scrolling text area of the Procedure Builder.

    RCCONFIG SOURCE=1

24. Insert another directive keyword into the scrolling text area.

    a. Verify the cursor is on a blank line following the preceding inserted directive.

    b. Enter the following text into the Directive Keywords text field and press the Enter key.

    MODE

    c. Verify the directive keyword appears as the first keyword in the list box.

    d. Single click on the directive keyword, MODE in the list box.

    e. Verify that the qualifiers of the directive appear in the Selection Template list box.

f. Double click on the directive keyword, MODE in the list box.

g. Verify that the directive is inserted into the ECL text field.

h. Double click the following item in the Selection Template list box.

<AUTO | STEP>

i. Verify that the item is inserted into the ECL text field.

j. Edit the ECL text field by deleting the following:

< | STEP>

k. Click the OK push button.

l. Verify that the Directive Builder window closes and the following contents of the ECL field are inserted into the scrolling text area of the Procedure Builder window.

MODE AUTO

25. Invoke the Check Syntax control button.

a. Verify the status as PASS (Green) in the syntax text field.

b. Verify the following statement on the status message line:

Syntax Verified.

26. Edit ‘PROC xxxx()’and ‘END PROC xxxx’ with the following respectively:

PROC GNDPROC1

END PROC GNDPROC1

27. Invoke the Check Syntax and Validate control buttons.

a. Verify the status as PASS (Green) in the syntax text field.

b. Verify the status as ???? (Yellow) in the validate text field.

c. Verify the following statement on the status message line:

Syntax Verified.

28. Select the Procedure Type.

a. Invoke the Procedure Type button and select the Ground option.

b. Verify that Ground is inserted as the Procedure Type.

29. Save the file.

a. Select the File pull down menu bar.

b. Select the Save option.

c. Click on the ‘System Dir.’ selection button.

d. Verify the default file path directory as the following:

/fos/test/am1/procs/

e. Insert the following File name into the Selection field.

AM1_GNDPROC1

f. Invoke the OK button and verify the selection window closes.

30. Open a new file.

a. Select the File pull down menu.

b. Select the New option to open a template file.

c. Verify the blank template.

31. Delete the following by using the cursor to high light the text and pressing the delete key:

#

 # INSERT ECL DIRECTIVES HERE

#

(*The cursor should be flashing on a blank line within the scrolling text area.*)

32. Insert a directive keyword into the scrolling text area manually.

a. Verify the cursor is on a blank line within the scrolling text area.

b. Enter the following directive keyword.

ABBORT

33. Invoke the Validate and Check Syntax control button.

a. Verify the status as FAIL (Red) in the syntax text field.

b. Verify the following statement on the status message line.

Syntax error: parse error → invalid parameter ABBORT at line __

34. Correct the syntax error.

a. Highlight the text using the pointer and enter the following text.

ABORT

35. Invoke the Check Syntax control button.

a. Verify the status as PASS (Green) in the syntax text field.

b. Verify the following statement on the status message line.

    Syntax Verified.

36. Edit ‘PROC xxxx()’and ‘END PROC xxxx’ with the following respectively:

    PROC EMGYPROC1()

    END PROC EMGYPROC1

37. Invoke the Check Syntax and Validate control buttons.

    a. Verify the status as PASS (Green) in the syntax text field.

    b. Verify the status as ???? (Yellow) in the validate text field.

    c. Verify the following statement on the status message line:

        Syntax Verified.

38. Select the Procedure Type.

    a. Invoke the Procedure Type button and select the Emergency option.

    b. Verify that Emergency is inserted as the Procedure Type.

39. Save the file.

    a. Select the File pull down menu bar.

    b. Select the Save option.

    c. Click on the ‘System Dir.’ selection button.

    d. Verify the default file path directory as the following:

        /fos/test/am1/procs/

    e. Insert the following File name into the Selection field.

        AM1_EMGYPROC1

    f. Invoke the OK button and verify the selection window closes.

40. Open an existing file.

    a. Select the File pull down menu bar.

    b. Select the Open option.

    c. Click on the ‘System Dir.’ selection button.

    d. Verify the default file path directory as the following:

        /fos/test/am1/procs/

    e. Select the File name AM1_GNDPROC1.

f. Invoke the OK button to close the selection window and open the file.

g. Verify the Identification line information.

(1) The Procedure File Name will be AM1_GNDPROC1.

(2) The Procedure Type will be Ground.

41. Verify the Meta Data information.

a. Select the Tool pull down menu.

b. Select the Meta Data option.

c. Verify the following information will appear in an information window.

(1) Procedure Name: AM1_GNDPROC1

(2) Proc Type: Ground

(3) Syntax: PASS

(4) Validation: ????

(5) Proc Location: /fos/test/am1/procs

(6) Author: fostest#

(7) Last Modified By: fostest#

(8) Date Created: <the current date> (MON DD HH:MM YYYY)

(9) Last Modified: <the current date> (MON DD HH:MM YYYY)

(*# Indicates the number in which the user is logged in as.*)

42. Invoke the Close button to close the information window.

43. Perform the Cut and Paste Edit functions on a directive keyword.

a. Highlight the directive keyword, NCC COMMTEST, by using the cursor.

b. Select the Edit pull down menu bar.

c. Select the Cut option to move the keyword to the clipboard.

d. Move the cursor to the line within the scrolling text area following the last directive keyword, MODE AUTO.

e. Select the Edit pull down menu bar.

f. Select the Paste option to insert the keyword NCC COMMTEST.

g. Verify the inserted keyword.

44. Perform the Copy and Paste Edit functions on a directive keyword.

a. Highlight the directive keyword, RCCONFIG SOURCE=1, with the cursor.

b. Select the Edit pull down menu bar.

c. Select the Copy option to move the keyword to the clipboard.

d. Move the cursor to the line within the scrolling text area after the last directive keyword, NCC COMMTEST.

e. Select the Edit pull down menu bar.

f. Select the Paste option to move the keyword to the text area.

RCCONFIG SOURCE=1.

g. Verify the inserted keyword.

45. Perform the Delete Edit function on a directive keyword.

a. Highlight the directive keyword, TAKE GROUNGCONTROL, with the cursor.

b. Select the Edit pull down menu.

c. Select the Delete option.

d. Verify the deletion of the keyword.

46. Save the file with current name.

a. Select the File pull down menu.

b. Select the Save option.

c. Verify that no dialog window is displayed.

d. Verify the saved message on the message line.

47. Print the current Procedure.

a. Invoke the File menu.

b. Select the Print option.

c. Verify the following message in the status message line:

Print is successful.

d. Verify the hard copy print at the default printer.

48. Perform the Find/Replace function.

a. Invoke the Edit menu.

b. Select the Find/Replace button.

c. Verify the Find/Replace dialog window opening.

d. Place cursor in the ‘Find’ text field and type NCC.

e. Place cursor in the ‘Replace’ text field and type CMD.

f. Click on to the Find Next button.

g. Verify the selection of NCC in the procedure scrolling text area.

h. Click onto the Replace button.

i. Verify the replacement of NCC with CMD.

j. Click onto the Cancel button and verify Find/Replace dialog window closes.

49. Invoke the Check Syntax control button.

    a. Verify the status as FAIL (Red) in the syntax text field.

    b. Verify the following statement on the status message line.

        Syntax error: parse error → invalid parameter CMD COMMTEST at line __

50. Correct the syntax error.

    a. Highlight the CMD text using the cursor and enter the following text.

        NCC

51. Invoke the Check Syntax control button.

    a. Verify the status as PASS (Green) in the syntax text field.

    b. Verify the following statement on the status message line.

        Syntax Verified.

52. Insert an existing PROC into the current PROC.

    a. Place cursor on the next available line following the last directive keyword.

    b. Enter the following text:

        START AM1_EMGYPROC1

53. Invoke the Check Syntax control button.

    a. Verify the status as PASS (Green) in the syntax text field.

    b. Verify the following statement on the status message line.

        Syntax Verified.

54. Save the file with current name.

    a. Select the File pull down menu.

b. Select the Save option.

c. Verify that no dialog window is displayed.

55. Open a new file.

a. Select the File pull down menu.

b. Select the New option to open a template file.

c. Verify the blank template.

56. Delete the following by using the cursor to high light the text and pressing the delete key:

#

 # INSERT ECL DIRECTIVES HERE

#

(*The cursor should be flashing on a blank line within the scrolling text area.*)

57. Insert a simple conditional construct. (IF-THEN-ELSE)

a. Place the cursor in the scrolling text area on the first available line following all preceding directives.

b. Enter the following text as shown.

```
int $A, $B
$A=1
$B=2
if ($A==3 && $B==3)
{
    TOOL Event_Display
    }
else
{
    TOOL Load_Builder
}
```

58. Invoke the Check Syntax control button.

a. Verify the status as PASS (Green) in the syntax text field.

b. Verify the following statement on the status message line.

Syntax Verified.

59. Create a nesting construct.

    a. Place the cursor in the scrolling text area and create a blank line after the following text.

        TOOL Event_Display

    b. Insert the following text as shown.

        switch ($B)

        {

        case 0:

        $B=1

        BREAK

        case 1:

        $B=2

        BREAK

        case 2:

        TOOL Load_Manager

        BREAK

        default:

        $B=$B

        BREAK

        }

60. Invoke the Check Syntax control button.

    a. Verify the status as PASS (Green) in the syntax text field.

    b. Verify the following statement on the status message line.

        Syntax Verified.

61. Edit 'PROC xxxx()'and 'END PROC xxxx' with the following respectively:

    PROC NESTCON()

    END PROC NESTCON

62. Invoke the Check Syntax and Validate control buttons.

a. Verify the status as PASS (Green) in the syntax text field.

b. Verify the status as ???? (Yellow) in the validate text field.

c. Verify the following statement on the status message line.

Syntax Verified.

63. Select the Procedure Type.

a. Invoke the Procedure Type button and select the Activity option.

b. Verify that Activity is inserted as the Procedure Type.

64. Save the file.

a. Select the File pull down menu bar.

b. Select the Save option.

c. Click on the 'System Dir.' selection button.

d. Verify the default file path directory as the following:

/fos/test/am1/procs/

e. Insert the following File name into the Selection field.

NEST_CONSTRUCT

f. Invoke the OK button and verify the selection window closes.

65. Open a new file.

a. Select the File pull down menu.

b. Select the New option to open a template file.

c. Verify the blank template.

66. Delete the following by using the cursor to high light the text and pressing the delete key:

#

 # INSERT ECL DIRECTIVES HERE

#

(*The cursor should be flashing on a blank line within the scrolling text area.*)

67. Insert a simple conditional construct. (IF-THEN-ELSE)

a. Place the cursor in the scrolling text area on the first available line following all preceding directives.

b. Enter the following text as shown.

int $A, $B

$A=1

$B=2

if ($A==3 || $B==2)

{

TOOL Event_Display

}

else

{

TOOL Load_Builder

}

68. Invoke the Check Syntax control button.

    a. Verify the status as PASS (Green) in the syntax text field.

    b. Verify the following statement on the status message line.

        Syntax Verified.

69. Create a nesting iterative loop.

    a. Place the cursor in the scrolling text area and create a blank line after the following text.

        TOOL Event_Display

    b. Insert the following text as shown.

        do

        {

        PAGE ALPHA1

        $B=$B+1

        }

        until ($B>=4)

70. Invoke the Check Syntax control button.

    a. Verify the status as PASS (Green) in the syntax text field.

    b. Verify the following statement on the status message line.

Syntax Verified.

71. Insert a jump statement within a loop to prematurely exit the loop.

    a. Place the cursor in the scrolling text area and create a blank line after the following text.

       PAGE ALPHA1

       $B=$B+1

    b. Enter the following text as shown.

       GOTO LABEL_1

    c. Place the cursor in the scrolling text area and create a blank line after the following text.

       until ($B>=4)

    d. On the blank line, enter the following text as shown.

       LABEL_1:

72. Invoke the Check Syntax control button.

    a. Verify the status as PASS (Green) in the syntax text field.

    b. Verify the following statement on the status message line.

       Syntax Verified.

73. Edit ‘PROC xxxx()’and ‘END PROC xxxx’ with the following respectively:

    PROC NESTLOOP1()

    END PROC NESTLOOP1

74. Invoke the Check Syntax and Validate control buttons.

    a. Verify the status as PASS (Green) in the syntax text field.

    b. Verify the status as ???? (Yellow) in the validate text field.

    c. Verify the following statement on the status message line.

       Syntax Verified.

75. Select the Procedure Type.

    a. Invoke the Procedure Type button and select the Activity option.

    b. Verify that Activity is inserted as the Procedure Type.

76. Save the file.

a. Select the File pull down menu bar.

b. Select the Save As option.

c. Click on the ‘System Dir.’ selection button.

d. Verify the default file path directory as the following:

/fos/test/am1/procs/

e. Insert the following File name into the Selection field.

NEST_LOOP1

f. Invoke the OK button and verify the selection window closes.

77. Open a new file.

a. Select the File pull down menu.

b. Select the New option to open a template file.

c. Verify the blank template.

78. Delete the following by using the cursor to high light the text and pressing the delete key:

#

 # INSERT ECL DIRECTIVES HERE

#

(*The cursor should be flashing on a blank line within the scrolling text area.*)

79. Insert a iterative loop construct. (DO-WHILE)

a. Enter the following text as shown.

int $A, $B

$A=1

$B=2

do

{

TOOL Load_Manager

$A=$A+1

}

while ($A<3)

80. Invoke the Check Syntax control button.

a. Verify the status as PASS (Green) in the syntax text field.

b. Verify the following statement on the status message line.

Syntax Verified.

81. Create a nesting iterative loop. (FOR)

a. Place the cursor in the scrolling text area and create a blank line after the following text.

TOOL Load_Manager

$A=$A+1

b. Enter the following text as shown.

for ($B=2; $B<6; $B++)

{

PAGE ASTER

$B=$B+2;

}

82. Invoke the Check Syntax control button.

a. Verify the status as PASS (Green) in the syntax text field.

b. Verify the following statement on the status message line.

Syntax Verified.

83. Edit 'PROC xxxx()'and 'END PROC xxxx' with the following respectively:

PROC NESTLOOP2()

END PROC NESTLOOP2

84. Invoke the Check Syntax and Validate control buttons.

a. Verify the status as PASS (Green) in the syntax text field.

b. Verify the status as ???? (Yellow) in the validate text field.

c. Verify the following statement on the status message line.

Syntax Verified.

85. Select the Procedure Type.

a. Invoke the Procedure Type button and select the Local option.

b. Verify that Local is inserted as the Procedure Type.

86. Save the file.

    a. Select the File pull down menu bar.

    b. Select the Save option.

    c. Click on the ‘System Dir.’ selection button.

    d. Verify the default file path directory as the following:

        /fos/test/am1/procs/

    e. Insert the following File name into the Selection field.

        NEST_LOOP2

    f. Invoke the OK button and verify the selection window closes.

87. Open a new file.

    a. Select the File pull down menu.

    b. Select the New option to open a template file.

    c. Verify the blank template.

88. Delete the following by using the cursor to high light the text and pressing the delete key:

    #

    # INSERT ECL DIRECTIVES HERE

    #

    (*The cursor should be flashing on a blank line within the scrolling text area.*)

89. Insert an array statement.

    a. Enter the following text as shown.

        int $A, $B, $C

        $C[1]=4

90. Invoke the Check Syntax control button.

    a. Verify the status as PASS (Green) in the syntax text field.

    b. Verify the following statement on the status message line.

        Syntax Verified.

91. Insert a comment statement.

    a. Place the cursor in the scrolling text area and create a blank line after the following text.

$C[1]=4

b. Enter the following text as shown.

############################

 # TESTING FOR OPERATORS

############################

92. Invoke the Check Syntax control button.

a. Verify the status as PASS (Green) in the syntax text field.

b. Verify the following statement on the status message line.

Syntax Verified.

93. Verify the use of arithmetic operators.

a. Place the cursor in the scrolling text area and create a blank line after the following text.

############################

 # TESTING FOR OPERATORS

############################

b. Enter the following text as shown.

$A=4

$B=$A/2*3

94. Invoke the Check Syntax control button.

a. Verify the status as PASS (Green) in the syntax text field.

b. Verify the following statement on the status message line.

Syntax Verified.

95. Verify the use of functions.

a. Place the cursor in the scrolling text area and create a blank line after the following text.

$A=4

$B=$A/2*3

b. Enter the following text as shown.

$A=(60cos*90sin)

$B=sqrt25

96. Invoke the Check Syntax control button.
    a. Verify the status as PASS (Green) in the syntax text field.
    b. Verify the following statement on the status message line.

       Syntax Verified.

97. Edit ‘PROC xxxx()’and ‘END PROC xxxx’ with the following respectively:

    PROC EXPRES()

    END PROC EXPRES

98. Invoke the Check Syntax and Validate control buttons.
    a. Verify the status as PASS (Green) in the syntax text field.
    b. Verify the status as ???? (Yellow) in the validate text field.
    c. Verify the following statement on the status message line.

       Syntax Verified.

99. Select the Procedure Type.
    a. Invoke the Procedure Type button and select the Local option.
    b. Verify that Local is inserted as the Procedure Type.

100. Save the file.
    a. Select the File pull down menu bar.
    b. Select the Save option.
    c. Click on the ‘System Dir.’ selection button.
    d. Verify the default file path directory as the following:

       /fos/test/am1/procs/

    e. Insert the following File name into the Selection field.

       EXPRESSIONS

    f. Invoke the OK button and verify the selection window closes.

101. Exit Procedure Builder from the File pull down menu by selecting Close.

102. This concludes the test.

Test No.: FUI 2030A

Test Title: Request Pre-planned Command PROC

Test Support: One EOC user station, RTS

Test Dependencies: Command Control Window and previously saved command proc, COMMAND1

Test Description:

This test is designed to verify the ability to execute and monitor a PROC with commands. These commands may be critical or non-critical. The test will also verify the manual and PROC transmission of critical commands.

The test begins with the initialization of the EOC to support PROC processing. The PROC Control Window is invoked and PROCs are accessed. Once accessed, each PROC is executed and verified for transmission of critical and non-critical commands. Operator input testing will occur also.

Success Criteria:

This test is successful when the user has the ability to monitor the execution of command PROCs consisting of one or more commands. Prior to uplinking critical commands the system will prompt the authorized user to submit an ALLOW or CANCEL regardless of the origin (operator input, command PROC, or ground script).

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

   note: Script is complete when the user gets the following message in the terminal window:

   ‘Successful installation of signal handler’

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL > **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   note: Script is complete when the user gets the following event message:

   'String 100 was created.'

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG=MIRROR**

   note: Wait to receive the following event message:

   'Successfully connected to string 100'.

7. Verify that the Control window is displayed. This Window contains the following:

   a. A line to enter ECL directives

   b. An area to display and manipulate event messages

   c. Various buttons to display rooms, windows, tools, and procedures

8. Acquire Command Activity Controller, CAC, privilege.

   a. Enter the following directive from the control window.

      ECL> **STRING CONNECT STRING=100**

      TLMTYPE=STANDBY CONFIG=MIRROR

ECL> **TAKE COMMAND STRING=100**

b. Verify message via event display indicating command privileges have been assigned to the proper username and workstation id.

9. Activate the Command Control Window.

a. Enter the following directive from the control window.

ECL> **TOOL Command_Control**

b. Verify a dialog box appears and enter the following information:

STRING = **100**

SPACECRAFT ID = **AM1**

c. Click the OK button.

d. Verify the Command Control window display. This window will contain the following:

(1) A title bar stating ‘Command Control Window String=100’

(2) A menu bar with File, Edit, Config, Utility, and Help pull down menus.

(3) Procedure Status Information.

(4) Command/Directive Display window.

(5) Command, Directive, and Schedule control buttons.

(6) Command input field.

10. Start an executable Command PROC.

a. Place cursor in the CMD text field.

b. Enter the following text in this order:

(1) **CMD: CV OFF**

(2) **CMD: TV OFF**

(3) **CMD: START COMMAND1 TIME=HH:MM:SS**

(HH:MM:SS should be approximately ten minutes from the current time)

c. Invoke the ‘Resume’ button and then the ‘Send’ button for each command/directive.

d. Verify the status message in the status column after execution of the Resume and Send buttons.

e. Verify that the COMMAND1 PROC starts at the appropriate time and ends successfully.

11. Send a critical command.

    a. Place the cursor in CMD text field.

    b. Enter the following critical command

        >/COM_TURN_ON_SSPA1

    c. Invoke the 'Resume' button and then the 'Send' button.

    d. Verify the status message in the status column after execution of the Resume and Send buttons.

12. Verify critical command message in the status column that prompts user for Allow or Cancel.

13. Click the Allow control button to send the critical command.

14. Verify transmission of critical command in Command Control Window.

15. Exit the Command Control Window from the File pull down menu by selecting Close.

16. Verify the Control window display. This window should contain the following:

    a. A line to enter ECL directives.

    b. An area to display and manipulate event messages

    c. Various buttons to display rooms, windows, tools, and procedures.

17. This concludes the test.

Test No.: FUI 2040A

Test Title: Time Selector

Test Configuration: Real-time server and EOC user station (Sun OS= SunSparc, Solaris 2.5), Dev't Suite= SPARCworks 3.01, C++ Compiler 4.0.1, Motif1.2.4, RogueWave DBTools 1.1.0.

Test Support: Test Driver that invokes each of the time selector windows (FuTsdriver).

Test Description:

This test is designed to verify the ability to select time durations and interval options for historical analysis and replay functions via the Time Selector utility. Following sign-on at the EOC, the Time Selector utility is invoked via a test driver. A time selector window is invoked and time durations are supplied. After verification that a valid time was entered by the user, the time selector window is again invoked and new time durations entered and verified. The last portion of the test deals with the selection of menu options causing error conditions (i.e. missing fields in the selection).

Success Criteria:

This test is considered successful when the user is able to select either an epoch time, a start/stop time/event or duration, and an interval time; Valid start/stop times/events or durations can be based on calendar date and time, north/south equator crossing, orbital day/orbital night, loss of signal/acquisition of signal, last N hours, and last N orbits; Interval times can be based on every N orbits, passes, hours, days, weeks, and months; All valid time durations and interval times, entered by the user, are accepted by the Time Selector utility; All incorrectly specified durations or time intervals result in error messages.

Procedure:

1. Log onto the EOC workstation, dedicated as a user station, under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. At the UNIX prompt, source the FOS environment variables and invoke the timeselector driver.

   %: **setenv SCRIPT UserStation**

   %: **cd /fos/test/am1/scripts/setup**

   %: **source FosEnvVars**

   %: **cd /fos/test/am1/bin/sun_sparc_5-4**

   %: **FuTsdriver -pageNoIPC**

3. Verify that the Test Driver window is displayed. This should consist of thefollowing five buttons:

   (1) Single Time Selector

   (2) Absolute Pair Time

   (3) Pair Time Selector

   (4) Interval Time Selector

   (5) Exit

4. Click the mouse on the ‘Single Time Selector’ button.

5. Verify that the Single Time Selector Window is displayed. This window should contain the following fields and user interface menus:

   Time or Event toggle switch

   Under the time selection:

      Date

      Time

   Under the event selection:

      Orbit

      Sequence

      Event

      Delta Time

6. Select an absolute time value based upon a date and a time.

   a. Click the mouse on the ‘Time’ button.

   b. Enter into the Date field:

      > **1996/071**

   c. Enter into the Time field:

      > **16:50:28.000**

   d. Verify that the date and time displayed at the bottom of the window is consistent with the date and time entered into the fields.

   e. Click the mouse on the ‘OK’ button.

7. Verify that the date and time returned, in the terminal window, matches the date and time supplied in the Single Time Selector window.

8. Activate the Single Time Selector window.
    a. Click the mouse on the ‘Single Time Selector’ button.
    b. Verify that the Single Time Selector Window is displayed.
9. Select an absolute time value based upon an event and a delta time.
    a. Click the mouse on the ‘Event’ button.
    b. Enter into the Orbit field:

        > **11111**

    c. Enter into the Sequence field:

        > **1**

    d. Click the mouse on the Event field.
        (1) Verify that the events include, but are not limited to, the following:

            North Equator Crossing

            South Equator Crossing

            Sunrise

            Sunset

            Acquisition of Signal

            Loss of Signal

        (2) Click the mouse on ‘Loss of Signal’
    e. Enter into the Delta Time field:

        > **00:01:00.000**

    f. Verify that the event displayed at the bottom of the window is consistent with the event entered into the fields.
    g. Click the mouse on the ‘OK’ button.
10. Verify that the event and time associated with that event in the data file is returned in the console window.
11. Activate the Single Time Selector window.
    a. Click the mouse on the ‘Single Time Selector’ button.
    b. Verify that the Single Time Selector Window is displayed.
12. Select an absolute time value based upon a date and a time.

a. Click the mouse on the ‘Time’ button.

b. Enter into the Time field:

> **(make field blank)**

c. Verify that an error message is received for invalid time entered.

d. Enter into the Date field:

> **1996/071**

e. Enter into the Time field:

> **16:50:28**

f. Verify that an error message is received for invalid time entered.

g. Click the mouse on the ‘Event’ button.

h. Enter into the Orbit field:

> **A**

i. Verify that an error message is received for an invalid integer entered.

j. Enter into the Orbit field:

> **11111**

k. Click the mouse on the Event field.

(1) Verify that a list of events is displayed.

(2) Click the mouse on ‘Sunrise’

l. Enter into the Delta Time field:

>**(make field blank)**

m. Verify that an error message is received for invalid delta time.

13. Click the mouse on the ‘Cancel’ button.

14. Activate the Interval Time Selector window.

a. Click the mouse on the ‘Interval Time Selector’ button.

b. Verify that the Interval Time Selector window is displayed. This window should include the following fields and user interface menus:

Start Date

Stop Date

Time/Event toggle field

Time

Frequency

Orbit

Sequence

Event

Delta Time

15. Select a time interval based upon a relative time.

a. Enter into the Start Date field:

> **1996/071**

b. Enter into the Stop Date field:

> **1996/072**

c. Click the mouse on the 'Activation' button.

(1) Verify that the pop up menu contains the following selections:

Time

Event

(2) Click the mouse on 'Time'.

d. Enter into the Time field:

> **17:10:33.000**

e. Enter into the Frequency field:

> **1**

f. Click the mouse on the 'Frequency' button.

(1) Verify that the pop up menu contains the following selections:

Minute

Hour

Day

Month

Sunday

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Orbit

Contact

(2) Click the mouse on ‘Hour’.

g. Verify that the time interval displayed on the bottom of the window is consistent with the interval time entered into the fields by the user.

h. Click the mouse on the ‘OK’ button.

16. Verify that the interval time returned, in the console window, matches the interval time supplied in the Interval Time Selector window.

17. Activate the Interval Time Selector window.

a. Click the mouse on the ‘Interval Time Selector’ button.

b. Verify that the Interval Time Selector window is displayed.

18. Select a time interval based upon an event and a delta time.

a. Enter into the Start Date field:

> **1996/071**

b. Enter into the Stop Date field:

> **1996/072**

c. Click the mouse on the ‘Activation’ button.

(1) Verify that the pop up menu contains the following selections:

Time

Event

(2) Click the mouse on ‘Event’.

d. Enter into the sequence field:

> **1**

e. Click the mouse on the ‘Event’ menu button.

f. Verify that a list of events is displayed.

g. Enter into the Delta Time field:

> **00:00:00.000**

h. Enter into the Frequency field:

> **1**

i. Click the mouse on the ‘Frequency’ field button.

(1) Verify that the pop up menu with possible frequencies is displayed.

(2) Click the mouse on ‘Orbit’.

j. Verify that the time interval displayed on the bottom of the window is consistent with the interval time entered into the fields by the user.

k. Click the mouse on the ‘OK’ button.

note : This step will error because there is no events in the database.

19. Verify that the interval time returned, in the console window, matches the interval time supplied in the Interval Time Selector window.

20. Activate the Interval Time Selector window.

a. Click the mouse on the ‘Interval Time Selector’ button.

b. Verify that the Interval Time Selector window is displayed.

21. Select a time interval based upon a relative time.

a. Enter into the Stop Date field:

> **(make field blank)**

b. Verify that an error message is received for invalid stop date.

c. Enter into the Start Date field:

> **1996/071**

d. Enter into the Stop Date field:

> **1996/072**

e. Click the mouse on the ‘Activation’ button.

(1) Verify that the pop up menu contains the following selections:

Time

Event

(2) Click the mouse on ‘Time’.

f. Enter into the Time field:

> **17.10.33.000**

g. Verify that an error message is received for an illegal time value.

h. Enter into the Time field:

> **24:01:00.000**

i. Verify that an error message is received for an illegal time value.

j. Enter into the Time field:

> **17:10:33.000**

k. Enter into the Frequency field:

> **61**

l. Click the mouse on the ‘Frequency’ field button.

(1) Verify that the pop up menu with possible frequencies is displayed.

(2) Click the mouse on ‘Minute’.

m. Verify that the time interval displayed on the bottom of the window is consistent with the interval time entered into the fields by the user.

n. Click the mouse on the ‘OK’ button.

22. Verify that the interval time returned, in the console window, matches the interval time supplied in the Interval Time Selector window.

23. Activate the Interval Time Selector window.

a. Click the mouse on the ‘Interval Time Selector’ button.

b. Verify that the Interval Time Selector window is displayed.

24. Select a time interval based upon an event and a delta time.

a. Enter into the Start Date field:

> **1996/071**

b. Enter into the Stop Date field:

> **1996/072**

c. Click the mouse on the ‘Activation’ button.

(1) Verify that the pop up menu contains the following selections:

Time

Event

(2). Click the mouse on 'Event'.

d. Enter into the sequence field:

> **1**

e. Click the mouse on the 'Event' menu button.

f. Verify that a list of events is displayed.

g. Enter into the Delta Time field:

> **5**

h. Verify that an error message is received for an invalid Delta Time.

25. Click the mouse on the 'Cancel' button.

26. Activate the Pair Time Selector window.

a. Click the mouse on the 'Pair Time Selector' button.

b. Verify that the Pair Time Selector window is brought up. This window should include the following fields and user interface menus:

Type of pair time (Absolute or Relative)

Start/stop key (Time or Event)

Specify selection (End Time, End Event, or Duration)

Start date and time

Stop date and time

27. Select an absolute start and stop time based upon dates and times.

a. Click the mouse on the 'Absolute' icon.

b. Click the mouse on the 'Time' icon.

c. Click the mouse on the 'Specify End Time' icon.

d. Enter into the start date:

> **1996/071**

e. Enter into the start time:

> **16:55:25.000**

f. Enter into the stop date:

> **1996/072**

g. Enter into the stop time:

> **16:55:25.000**

h. Verify that the pair time displayed on the bottom of the window is consistent with the pair time entered into the fields by the user.

i. Click the mouse on the ‘OK’ button.

28. Verify that the pair time returned, in the console window, matches the pair time supplied in the Interval Time Selector window.

29. Activate the Pair Time Selector window.

a. Click the mouse on the ‘Pair Time Selector’ button.

b. Verify that the Pair Time Selector window is brought up.

30. Select an absolute start and stop time based upon a start date/time and a duration.

a. Click the mouse on the ‘Absolute’ icon.

b. Click the mouse on the ‘Time’ icon.

c. Click the mouse on the ‘Specify Duration’ icon.

d. Enter into the start date:

> **1996/071**

e. Enter into the start time:

> **16:55:25.000**

f. Enter into the duration:

> **30**

g. Click the mouse on the ‘Duration’ button.

h. Verify that a list of possible durations is displayed.

i. Click the mouse on ‘Second’.

j. Verify that the pair time displayed on the bottom of the window is consistent with the pair time entered into the fields by the user.

k. Click the mouse on the ‘OK’ button.

31. Verify that the pair time returned, in the console window, matches the pair time supplied in the Interval Time Selector window.

32. Activate the Pair Time Selector window.

a. Click the mouse on the ‘Pair Time Selector’ button.

b. Verify that the Pair Time Selector window is brought up.

33. Select an absolute start and stop time based upon a start date/time and a stop event plus a delta time.

a. Click the mouse on the ‘Absolute’ icon.

b. Click the mouse on the ‘Time’ icon.

c. Click the mouse on the ‘Specify End Event’ icon.

d. Enter into the start date:

> **1996/071**

e. Enter into the start time:

> **16:55:25.000**

f. Enter into the Orbit field:

> **11111**

g. Enter into the sequence field:

> **1**

h. Click the mouse on the ‘Event’ button.

i. Verify that a list of events is displayed.

j. Click the mouse on ‘Loss of Signal’

k. Enter into the Delta Time field:

> **00:00:00.000**

l. Verify that the pair time displayed on the bottom of the window is consistent with the pair time entered into the fields by the user.

m. Click the mouse on the ‘OK’ button.

note : This step will error because there is no events in the database.

34. Verify that the pair time returned, in the console window, matches the pair time supplied in the Interval Time Selector window.

35. Activate the Pair Time Selector window.

a. Click the mouse on the ‘Pair Time Selector’ button.

b. Verify that the Pair Time Selector window is brought up.

c. Select a relative start and stop time based upon days of the week and times.

(1) Click the mouse on the ‘Relative’ icon.

(2) Click the mouse on the ‘Time’ icon.

(3) Click the mouse on the ‘Specify End Time’ icon.

(4) Enter into the start day of week:

> **Monday**

(5) Enter into the start time:

> **16:55:25.000**

(6) Enter into the stop day of week:

> **Wednesday**

(7) Enter into the stop time:

> **16:55:25.000**

36. Verify that the pair time displayed on the bottom of the window is consistent with the pair time entered into the fields by the user.

37. Click the mouse on the ‘OK’ button.

38. Verify that the pair time returned, in the console window, matches the pair time supplied in the Interval Time Selector window.

39. Activate the Pair Time Selector window.

a. Click the mouse on the ‘Pair Time Selector’ button.

b. Verify that the Pair Time Selector window is brought up.

c. Select a relative start and stop time based upon a start day of the week and a duration.

(1) Click the mouse on the ‘Relative’ icon.

(2) Click the mouse on the ‘Time’ icon.

(3) Click the mouse on the ‘Specify Duration’ icon.

(4) Enter into the start day of the week:

> **Monday**

(5) Enter into the start time:

> **16:55:25.000**

(6) Enter into the duration:

> 30

(7) Click the mouse on the ‘Duration’ button.

(8) Verify that a list of possible durations is displayed.

(9) Click the mouse on the ‘Minute’ button.

40. Verify that the pair time displayed on the bottom of the window is consistent with the pair time entered into the fields by the user.

41. Click the mouse on the ‘OK’ button.

42. Verify that the pair time returned, in the console window, matches the pair time supplied in the Interval Time Selector window.

43. Activate the Pair Time Selector window.

a. Click the mouse on the ‘Pair Time Selector’ button.

b. Verify that the Pair Time Selector window is brought up.

44. Select a relative start and stop time based upon a start day of the week and a stop event plus a delta time.

a. Click the mouse on the ‘Relative’ icon.

b. Click the mouse on the ‘Time’ icon.

c. Click the mouse on the ‘Specify End Event’ icon.

d. Enter into the start day of the week:

> **Monday**

e. Enter into the start time:

> **16:55:25.000**

f. Enter into the Orbit field:

> **11111**

g. Enter into the sequence field:

> **1**

h. Click the mouse on the ‘Event’ button.

i. Verify that a list of events is displayed.

j. Click the mouse on ‘Loss of Signal’

k. Enter into the Delta Time field:

> **00:00:00.000**

l. Verify that the pair time displayed on the bottom of the window is consistent with the pair time entered into the fields by the user.

m. Click the mouse on the ‘OK’ button.

45. Verify that the pair time returned, in the console window, matches the pair time supplied in the Interval Time Selector window.

46. Activate the Pair Time Selector window.

    a. Click the mouse on the ‘Pair Time Selector’ button.

    b. Verify that the Pair Time Selector window is brought up.

47. Select an absolute start and stop time based upon dates and times.

    a. Click the mouse on the ‘Absolute’ icon.

    b. Click the mouse on the ‘Time’ icon.

    c. Click the mouse on the ‘Specify End Time’ icon.

    d. Enter into the start date:

        > **1996/071**

    e. Enter into the start time:

        > **16:55:25.000**

    f. Enter into the stop date:

        > **1996/070**

48. Verify that an error message is displayed indicating the stop time was before the start time.

49. Select an absolute start and stop time based upon a start date/time and a stop event plus a delta time.

    a. Click the mouse on the ‘Absolute’ icon.

    b. Click the mouse on the ‘Time’ icon.

    c. Click the mouse on the ‘Specify End Event’ icon.

    d. Enter into the start date:

        > **071**

50. Verify that an error is displayed indicating an invalid date.

51. Select a relative start and stop time based upon days of the week and times.

    a. Click the mouse on the ‘Relative’ icon.

    b. Click the mouse on the ‘Time’ icon.

    c. Click the mouse on the ‘Specify End Time’ icon.

d. Enter into the start day of week:

> **Wednesday**

e. Enter into the start time:

> **16:55:25.000**

f. Enter into the stop day of week:

> **Tuesday**

g. Enter into the stop time:

> **16:55:25.000**

h. Click the mouse on the ‘OK’ button.

52. Verify that the pair time returned, in the console window, matches the pair time supplied in the Interval Time Selector window.

53. Click the mouse on the ‘Exit’ button and log off userstation(s).

Test No.: FUI 2050A

Test Title: Help Tool (Preliminary)

Test Configuration: See Appendix G

Test Support: An available web browser (Netscape). A Help.doc file that contains a sample help screen.

Test Description:

This test is designed to verify the ability to access the HELP utility at the EOC. Following sign on to an EOC user station, several FOS activities are initiated (i.e. Display builder, Analysis request, etc.). As activities are initiated, the HELP utility is selected to display a HELP window in Netscape. HELP windows are closed, other activities are initiated, and additional HELP windows are selected for display.

Success Criteria:

This test is considered successful when the HELP utility is accessible from any user station window; HELP data retrieval can be canceled; All HELP navigational schemes are available (i.e. hypertext forward, hypertext trace back, page forward, page backward, jump to home page, and search/find keyword).

Procedure:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

   note: Script is complete when the user gets the following message in the terminal window:

   'Successful installation of signal handler'

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

%: **source A2_UserStationStartup** *(wait for script completion)*

note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL > **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: rlogin foseoc6 -l *username*

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   note: Script is complete when the user gets the following event message:

   ‘String 100 was created.’

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG=MIRROR**

   note : Wait to receive the following event message:

   ‘Successfully connected to string 100’.

7. Verify that the Control window is displayed. This Window contains the following:

   a. A line to enter ECL directives

   b. An area to display and manipulate event messages

   c. Various buttons to display rooms, windows, tools, and procedures

8. Display the Help utility for the Control Window.

9. Click the mouse on the ‘Help’ button in the Control Window.

   a. Verify the following:

      (1) The Netscape Navigator is brought up.

      (2) A help screen is displayed to the user.

      (3) The user is provided with the option to cancel the data retrieval via a ‘Stop’ button.

(4) The help screen contains the following navigational capabilities:

(a) Hypertext forward

(b) Hypertext trace back

(c) Page forward

(d) Page backward

(e) Jump to home page

(f) Search/find on a keyword

10. Click the mouse on the ‘Forward’ button.

    a. Verify that page 2 of the help screen is displayed.

11. Click the mouse on the ‘Back’ button.

    a. Verify that page 1 of the help screen is displayed.

12. Click the mouse on the ‘Forward’ button.

    a. Verify that page 2 of the help screen is displayed.

13. Click the mouse on the ‘Home’ button.

    a. Verify that page 1 of the help screen is displayed.

14. Click the mouse on the ‘Edit’ pull down menu.

15. Click the mouse on ‘Find…’.

    a. Enter the following into the find text field:

       help

16. Click the mouse on the ‘OK’ button.

    a. Verify that the first occurrence of the word ‘help’ on the help screen is highlighted.

17. Display the Help utility for the Mini-Control window.

    a. Click the mouse on the ‘Mini Ctrl’ button.

    b. Verify that the Mini-Control window is displayed.

    c. Click the mouse on the ‘Help’ button in the Mini-Control window.

    d. Verify the following:

       (1) The Netscape Navigator is brought up.

       (2) A help screen is displayed to the user.

(3) The user is provided with the option to cancel the data retrieval via a ‘Stop’ button.

(4) The help screen contains the following navigational capabilities:

(a) Hypertext forward

(b) Hypertext trace back

(c) Page forward

(d) Page backward

(e) Jump to home page

(f) Search/find on a keyword

18. Double click on the small bar in the top left corner of the Mini-Control HELP window to close it.

19. Click the mouse on the ‘Control’ button.

a. Verify that the Control window is displayed.

20. Display the Help utility for the Filter Types window.

a. Click the mouse on the ‘Filter…’ button.

b. Verify that the Filter Types window is displayed.

21. Click the mouse on the ‘Help’ button in the Filter Types window.

a. Verify the following:

(1) The Netscape Navigator is brought up.

(2) A help screen is displayed to the user.

(3) The user is provided with the option to cancel the data retrieval via a ‘Stop’ button.

(4) The help screen contains the following navigational capabilities:

(a) Hypertext forward

(b) Hypertext trace back

(c) Page forward

(d) Page backward

(e) Jump to home page

(f) Search/find on a keyword

22. Double click on the small bar in the top left corner of the Filter Types HELP window to close it.

23. Click the mouse on the ‘Cancel’ button.

    a. Verify that the filter window has closed.

24. Display the Help utility for the Procedure Dialog window.

    a. Click the mouse on the ‘Procs…’ button.

    b. Verify that the Procedure Dialog window is displayed.

    c. Click the mouse on the ‘Help’ button in the Procedure Dialog window.

    d. Verify the following:

        (1) The Netscape Navigator is brought up.

        (2) A help screen is displayed to the user.

        (3) The user is provided with the option to cancel the data retrieval via a ‘Stop’ button.

        (4) The help screen contains the following navigational capabilities:

            (a) Hypertext forward

            (b) Hypertext trace back

            (c) Page forward

            (e) Page backward

            (f) Jump to home page

            (g) Search/find on a keyword

25. Double click on the small bar in the top left corner of Procedure Dialog HELP window to close it.

26. Click the mouse on the ‘Cancel’ button.

    a. Verify that the PROC window has closed.

27. Display the Help utility for the Telemetry Dialog window.

    a. Click the mouse on the ‘Tlm Wins…’ button.

    b. Verify that the Telemetry Dialog window is displayed.

    c. Click the mouse on the ‘Help’ button in the TLM Windows Dialog window.

    d. Verify the following:

        (1) The Netscape Navigator is brought up.

(2) A help screen is displayed to the user.

(3) The user is provided with the option to cancel the data retrieval via a ‘Stop’ button.

(4) The help screen contains the following navigational capabilities:

(a) Hypertext forward

(b) Hypertext trace back

(c) Page forward

(d) Page backward

(e) Jump to home page

(f) Search/find on a keyword

28. Double click on the small bar in the top left corner of the Telemetry Dialog HELP window to close it.

29. Click the mouse on the ‘Cancel’ button.

a. Verify that the TLM window has closed.

30. Display the Help utility for the Room Dialog window.

a. Click the mouse on the ‘Rooms…’ button.

b. Verify that the Room Dialog window is displayed.

c. Click the mouse on the ‘Help’ button in the Room Dialog window.

d. Verify the following:

(1) The Netscape Navigator is brought up.

(2) A help screen is displayed to the user.

(3) The user is provided with the option to cancel the data retrieval via a ‘Stop’ button.

(4) The help screen contains the following navigational capabilities:

(a) Hypertext forward

(b) Hypertext trace back

(c) Page forward

(d) Page backward

(e) Jump to home page

(f) Search/find on a keyword

31. Double click on the small bar in the top left corner of the Room Dialog HELP window to close it.

32. Click the mouse on the ‘Cancel’ button.

    a. Verify that the Room dialog window has closed.

33. Display the Help utility for the Tools Dialog window.

    a. Click the mouse on the ‘Tools…’ button.

    b. Verify that the Tools Dialog window is displayed.

34. Click the mouse on the ‘Help’ button in the Tools Dialog window.

    a. Verify the following:

        (1) The Netscape Navigator is brought up.

        (2) A help screen is displayed to the user.

        (3) The user is provided with the option to cancel the data retrieval via a ‘Stop’ button.

        (4) The help screen contains the following navigational capabilities:

            (a) Hypertext forward

            (b) Hypertext trace back

            (c) Page forward

            (d) Page backward

            (e) Jump to home page

            (f) Search/find on a keyword

35. Double click on the small bar in the top left corner of the Tools Dialog HELP window to close it.

36. Click the mouse on the ‘Cancel’ button.

37. Display the Help utility for the Analysis Request window.

    a. Click the mouse on the ‘Tools…’ button.

    b. Verify that the Tools Dialog window is displayed.

    c. Click the mouse on Analysis_Request_Builder

    d. Click the mouse on the ‘OK’ button.

    e. Verify that the Analysis Request window is displayed.

    f. Click the mouse on the ‘Help’ button in the Analysis Request window.

g. Verify the following:

    (1) The Netscape Navigator is brought up.

    (2) A help screen is displayed to the user.

    (3) The user is provided with the option to cancel the data retrieval via a ‘Stop’ button.

    (4) The help screen contains the following navigational capabilities:

        (a) Hypertext forward

        (b) Hypertext trace back

        (c) Page forward

        (d) Page backward

        (e) Jump to home page

        (f) Search/find on a keyword

38. Double click on the small bar in the top left corner of the Analysis Request HELP window to close it.

39. Display the Help utility for the Analysis Telemetry Selector window.

    a. Click the mouse on the ‘Select Telemetry’ button.

    b. Verify that the Analysis Telemetry Selector window is displayed.

    c. Click the mouse on the ‘Help’ button in the Analysis Telemetry Selector window.

    d. Verify the following:

        (1) The Netscape Navigator is brought up.

        (2) A help screen is displayed to the user.

        (3) The user is provided with the option to cancel the data retrieval via a ‘Stop’ button.

        (4) The help screen contains the following navigational capabilities:

            (a) Hypertext forward

            (b) Hypertext trace back

            (c) Page forward

            (d) Page backward

            (e) Jump to home page

            (f) Search/find on a keyword

40. Double click on the small bar in the top left corner of the Analysis Telemetry Selector HELP window to close it.

41. Click the mouse on the ‘Cancel’ button.

    a. Verify that the Analysis Request window is displayed.

42. Display the Help utility for the Pair Time Selector window.

    a. Click the mouse on the ‘Select Time’ button.

    b. Verify that the Pair Time Selector window is displayed.

    c. Click the mouse on the ‘Help’ button in the Pair Time Selector window.

    d. Verify the following:

        (1) The Netscape Navigator is brought up.

        (2) A help screen is displayed to the user.

        (3) The user is provided with the option to cancel the data retrieval via a ‘Stop’ button.

        (4) The help screen contains the following navigational capabilities:

            (a) Hypertext forward

            (b) Hypertext trace back

            (c) Page forward

            (d) Page backward

            (e) Jump to home page

            (f) Search/find on a keyword

43. Double click on the small bar in the top left corner of the Pair Time Selector HELP window to close it.

44. Click the mouse on the ‘Cancel’ button.

    a. Verify that the Analysis Request window is displayed.

45. Click the mouse on the ‘Cancel’ button.

    a. Verify that the Analysis Request window has closed.

46. Display the Help utility for the Room Builder window.

    a. Click the mouse on the ‘Tools…’ button.

    b. Verify that the Tools Dialog window is displayed.

    c. Click the mouse on Room_Builder.

d. Click the mouse on the ‘OK’ button.

e. Verify that the Define Room window is displayed.

f. Click the mouse on the ‘Help’ button in the Room Builder window.

g. Verify the following:

(1) The Netscape Navigator is brought up.

(2) A help screen is displayed to the user.

(3) The user is provided with the option to cancel the data retrieval via a ‘Stop’ button.

(4) The help screen contains the following navigational capabilities:

(a) Hypertext forward

(b) Hypertext trace back

(c) Page forward

(d) Page backward

(e) Jump to home page

(f) Search/find on a keyword

47. Double click on the small bar in the top left corner of Room Builder HELP window to close it.

48. Click the mouse on the ‘Cancel’ button.

a. Verify that the Define Room window has closed.

49. Display the Help utility for the Display Builder window.

a. Click the mouse on the ‘Tools…’ button.

b. Verify that the Tools Dialog window is displayed.

c. Click the mouse on Display_Builder.

d. Click the mouse on the ‘OK’ button.

50. Verify that the Display Builder Palette, Display Item Format, Display Item Sources, and the Data Source windows are displayed.

a. Click the mouse on the ‘Help’ button in the Display Builder Palette window.

b. Verify the following:

(1) The Netscape Navigator is brought up.

(2) A help screen is displayed to the user.

(3) The user is provided with the option to cancel the data retrieval via a ‘Stop’ button.

(4) The help screen contains the following navigational capabilities:

(a) Hypertext forward

(b) Hypertext trace back

(c) Page forward

(d) Page backward

(e) Jump to home page

(f) Search/find on a keyword

51. Display the Help utility for the Display Item Format window.

a. Click the mouse on the ‘Help’ button in the Data Source window.

b. Verify the following:

(1) The Netscape Navigator is brought up.

(2) A help screen is displayed to the user.

(3) The user is provided with the option to cancel the data retrieval via a ‘Stop’ button.

(4) The help screen contains the following navigational capabilities:

(a) Hypertext forward

(b) Hypertext trace back

(c) Page forward

(d) Page backward

(e) Jump to home page

(f) Search/find on a keyword

52. Double click on the small bar in the top left corner of the Display Builder windows Selector HELP window to close it.

53. Click the mouse on the ‘Quit’ option from the file pull-down menu.

a. Verify that the Display Builder window is displayed.

54. Display the Help utility for the Command Control window.

a. Click the mouse on the ‘Tools…’ button.

b. Verify that the Tools Dialog window is displayed.

c. Click the mouse on Command_Control.

d. Click the mouse on the ‘OK’ button.

e. Verify that the Command Control window is displayed.

f. Click the mouse on the ‘Help’ button in the Command Control window.

g. Verify the following:

   (1) The Netscape Navigator is brought up.

   (2) A help screen is displayed to the user.

   (3) The user is provided with the option to cancel the data retrieval via a ‘Stop’ button.

   (4) The help screen contains the following navigational capabilities:

      (a) Hypertext forward

      (b) Hypertext trace back

      (c) Page forward

      (d) Page backward

      (e) Jump to home page

      (f) Search/find on a keyword

55. Double click on the small bar in the top left corner of the Command Control HELP window to close it.

56. Click the mouse on the ‘Quit’ option from the file pull-down menu.

   a. Verify that the Command Control window has closed.

   b. click OK to close.

57. Display the Help utility for the Procedure Builder window.

   a. Click the mouse on the ‘Tools…’ button.

   b. Verify that the Tools Dialog window is displayed.

   c. Click the mouse on Procedure_Builder.

   d. Click the mouse on the ‘OK’ button.

   e. Verify that the Procedure Builder window is displayed.

   f. Click the mouse on the ‘Help’ button in the Procedure Builder window.

   g. Verify the following:

(1) The Netscape Navigator is brought up.

(2) A help screen is displayed to the user.

(3) The user is provided with the option to cancel the data retrieval via a ‘Stop’ button.

(4) The help screen contains the following navigational capabilities:

(a) Hypertext forward

(b) Hypertext trace back

(c) Page forward

(d) Page backward

(e) Jump to home page

(f) Search/find on a keyword

58. Double click on the small bar in the top left corner of the Procedure Builder HELP window to close it.

59. Click the mouse on the ‘‘Quit’ option from the file pull-down menu.

a. Verify that the Procedure Builder window has closed.

60. Display the Help utility for the Table Load Builder window.

a. Click the mouse on the ‘Tools…’ button.

b. Verify that the Tools Dialog window is displayed.

c. Click the mouse on Load_Builder..

d. Click the mouse on the ‘OK’ button.

e. Verify that the Table Load Builder window is displayed.

f. Click the mouse on the ‘Help’ button in the Table Load Builder window.

g. Verify the following:

(1) The Netscape Navigator is brought up.

(2) A help screen is displayed to the user.

(3) The user is provided with the option to cancel the data retrieval via a ‘Stop’ button.

(4) The help screen contains the following navigational capabilities:

(a) Hypertext forward

(b) Hypertext trace back

        (c) Page forward

        (d) Page backward

        (e) Jump to home page

        (f) Search/find on a keyword

61. Double click on the small bar in the top left corner of Load Builder HELP window to close it.

62. Display the Help utility for the Table Template Selector window.

    a. Click the mouse on the ‘File’ menu button.

    b. Click the mouse on ‘new’

    c. Verify that the Table Template Selector window is displayed.

    d. Click the mouse on the ‘Help’ button in the Table Template Selector window.

    e. Verify the following:

        (1) The Netscape Navigator is brought up.

        (2) A help screen is displayed to the user.

        (3) The user is provided with the option to cancel the data retrieval via a ‘Stop’ button.

        (4) The help screen contains the following navigational capabilities:

            (a) Hypertext forward

            (b) Hypertext trace back

            (c) Page forward

            (d) Page backward

            (e) Jump to home page

            (f) Search/find on a keyword

63. Double click on the small bar in the top left corner of the Table Template Selector HELP window to close it.

64. Click the mouse on the ‘Cancel’ button.

    a. Verify that the Table Load Builder window is displayed.

65. Click the mouse on the ‘Cancel’ button.

    a. Verify that the Table Load Builder window has closed.

66. Log off of all workstations.

Test No.: FUI 2060A

Test Title: Real-time Alphanumeric Page Display

Test Configuration: See Appendix G

Test Support: Telemetry data driver and necessary data files for off-line verification and analysis.

Test Description:

This test is designed to verify the ability to build and manage displays in the user station desktop environment.

The test begins with the invocation of the Display Builder Palette followed by a combination of "drag and drop" page building functions, including the generation of page background information (i.e. labels, horizontal/vertical separators), and the verification of accurate display of alphanumeric page foreground information (i.e. telemetry parameters, units, flags). Steps are provided to establish the data source for selected displays. After display pages and connecting data sources are established, the pages are saved, re-invoked from the DMS archive for redisplay, and used during telemetry processing.

Success Criteria:

Dynamic display page background palette selections are generated per user request; all drag and drop display generation activities match those input via FUI Display Builder palette selections; non-local displays generated may be accessed by any requesting EOC users; local displays may be invoked at builder's user station only.

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

   note: Script is complete when the user gets the following message in the terminal window:

   'Successful installation of signal handler'

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL > **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   note: Script is complete when the user gets the following event message:

   ‘String 100 was created.’

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG=MIRROR**

   note: Wait to receive the following event message:

   ‘Successfully connected to string 100’.

7. Verify that the Control window is displayed. This Window contains the following:

   a. A line to enter ECL directives

   b. An area to display and manipulate event messages

   c. Various buttons to display rooms, windows, tools, and procedures

8. Invoke the Display Builder tool via ECL directive:

   ECL: **TOOL Display_Builder**

9. Verify the following windows:

   a. Display Builder Palette window with several buttons and pull-down menu

b. Blank Display Builder

c. Data Source window

d. Display Item Format window for parameter control

e. Display Builder console

10. Insert the parameter fields onto the blank Display Builder.

    a. Click the ‘Field’ button on the Display Builder window.

    b. Drag the field to the blank display window.

    c. Repeat steps a and b until six fields are placed in the Display Builder palette in a column.

11. Place the selection high lighted box on the first field in Display Builder palette.

12. Select the data source of the parameters

    a. From the Display Builder window, click the ‘Edit’ pull-down menu and select ‘logical String Management’.

    b. Verify the Dynamic Page Data Sources window has appeared.

    c. Select the following options:

        (1) AM1

        (2) Real-time

        (3) Operational

        (4) Default

    d. Click the ‘Add’ button.

    e. Click the ‘OK’ button.

13. Create the filters of desired commands.

    a. From the Data Source window click the ‘Add’ button.

    b. Verify the Parameter Picker window has appeared.

    c. From the Parameter Picker window click the ‘Filter …’ button.

    d. Verify the Filter window has appeared.

    e. Select the following filtering items in the appropriate boxes and click on the ‘Select’ button to place the filter into the selection field:

        (1) AM1 COM I

        (2) AM1 COM P

(3) AM1 COM S

(4) AM1 EDS

(5) AM1 SDU

f. Click the ‘OK’ button.

g. Verify the Filter window closes and the filter selections have appeared in the Parameter Picker window with an associated toggle button.

14. Enter the first parameter onto the Display Builder.

a. Click the toggle button for the filter selection ‘AM1_COM_I’.

b. Verify the list of filtered commands are in the list box.

c. Select the following command and click the ‘→’ button.

COM_IR_SBT2_XMTR

d. Click the ‘OK’ button.

e. Verify the Parameter Picker window closes and the selected command has appeared in the first parameter field of the display window.

15. Place the selection high lighted box on the second field in the display window.

16. Open the Parameter Picker window.

a. From the Data Source window click the ‘Add’ button.

b. Verify the Parameter Picker window has appeared.

17. Deselect the command from the selection box.

a. Select the following command in the selection box and click the ‘←’ button.

COM_IR_SBT2_XMTR

b. Verify the selection is empty.

c. Click the toggle button for the filter selection ‘AM1_COM_I’.

d. Verify the filter list box is empty. (This process may take some time)

18. Enter the second parameter onto the Display Builder.

a. Click the toggle button for the filter selection ‘AM1_COM_P’.

b. Verify the list of filtered commands are in the list box.

c. Select the following command and click the ‘→’ button.

COM_PR_SBT1_FWD_RF

d. Click the ‘OK’ button.

e. Verify the Parameter Picker window closes and the selected command has appeared in the second parameter field of the display window.

19. Place the selection high lighted box on the third field in the display window.

20. Open the Parameter Picker window.

a. From the Data Source window click the ‘Add’ button.

b. Verify the Parameter Picker window has appeared.

21. Deselect the command from the selection box.

a. Select the following command in the selection box and click the ‘←’ button.

COM_PR_SBT1_FWD_RF

b. Verify the selection is empty.

c. Click the toggle button for the filter selection ‘AM1_COM_P’.

d. Verify the filter list box is empty. (This process may take some time)

22. Enter the third parameter onto the Display Builder.

a. Click the toggle button for the filter selection ‘AM1_COM_S’.

b. Verify the list of filtered commands are in the list box.

c. Select the following command and click the ‘→’ button.

COM_SR_SBT2_DOP_SUM

d. Click the ‘OK’ button.

e. Verify the Parameter Picker window closes and the selected command has appeared in the third parameter field of the display window.

f. From the Data Source window click the ‘OK’ button.

g. Verify the Data Source window has closed.

23. Place the selection high lighted box on the fourth field in the display window.

24. Open the Parameter Picker window.

a. From the Data Source window click the ‘Add’ button.

b. Verify the Parameter Picker window has appeared.

25. Deselect the command from the selection box.

a. Select the following command in the selection box and click the ‘←’ button.

COM_SR_SBT2_DOP_SUM

b. Verify the selection is empty.

26. Enter the fourth parameter onto the Display Builder.

a. Select the following command and click the '→' button.

COM_SR_SBT2_LO1_ERR

b. Click the 'OK' button.

c. Verify the Parameter Picker window closes and the selected command has appeared in the third parameter field of the display window.

27. Place the selection high lighted box on the fifth field in the display window.

28. Open the Parameter Picker window.

a. From the Data Source window click the 'Add' button.

b. Verify the Parameter Picker window has appeared.

29. Deselect the command from the selection box.

a. Select the following command in the selection box and click the '←' button.

COM_SR_SBT2_LO1_ERR

b. Verify the selection is empty.

c. Click the toggle button for the filter selection 'AM1_COM_S'.

d. Verify the filter list box is empty. (This process may take some time)

30. Enter the fifth parameter that is the master cycle count, onto the Display Builder.

a. Click the toggle button for the filter selection 'AM1_EDS'.

b. Verify the list of filtered commands are in the list box.

c. Select the following command and click the '→' button.

EDS_CYCLE_COUNT

d. Click the 'OK' button.

e. Verify the Parameter Picker window closes and the selected command has appeared in the fourth parameter field of the display window.

31. Place the selection high lighted box on the sixth field in the display window.

32. Open the Parameter Picker window.

a. From the Data Source window click the 'Add' button.

b. Verify the Parameter Picker window has appeared.

33. Deselect the first command from the selection box.

    a. Select the following command in the selection box and click the ‘←’ button.

    EDS_CYCLE_COUNT

    b. Verify the selection is empty.

    c. Click the toggle button for the filter selection ‘AM1_EDS’.

    d. Verify the filter list box is empty. (This process may take some time)

34. Enter the sixth parameter that is the major cycle count onto the Display Builder.

    a. Click the toggle button for the filter selection ‘AM1_SDU’.

    b. Verify the list of filtered commands are in the list box.

    c. Select the following command and click the ‘→’ button.

    SDU_PACKET_SEQ

    d. Click the ‘OK’ button.

    e. Verify the Parameter Picker window closes and the selected command has appeared in the sixth parameter field of the display window.

35. Open the Parameter Picker window.

    a. From the Data Source window click the ‘Add’ button.

    b. Verify the Parameter Picker window has appeared.

36. Deselect the first command from the selection box.

    a. Select the following command in the selection box and click the ‘←’ button.

    SDU_PACKET_SEQ

    b. Verify the selection is empty.

    c. Click the toggle button for the filter selection ‘AM1_SDU’.

    d. Verify the filter list box is empty. (This process may take some time)

37. Select display options for each parameter via mouse selection from the Display Item Format window as follows:

    a. COM_IR_SBT2_XMTR: decoded, hex, label=XMTR, flags enabled

    b. COM_PR_SBT1_FWD_RF: raw, formatted, no label, flags enabled

    c. COM_SR_SBT2_DOP_SUM: EU converted, octal, no label, flags enabled

d. COM_SR_SBT2_LO1_ERR: raw, binary, no label, flags disabled

e. EDS_CYCLE_COUNT: raw, label=MASTER, flags enabled

f. SDU_PACKET_SEQ: raw, label=MAJOR, flags enabled

38. Delete a parameter from the display page.

a. Select parameter COM_SR_SBT2_LO1_ERR via mouse from the Display Builder and Data Source window.

b. From the Data Source window click the ‘Remove’ button.

c. Verify the parameter and its associated display information is removed from the Display Builder and Data Source window.

39. Save the page display.

a. Select the FILE and SAVE AS options from the Display Builder palette.

b. Use the following directory to save the file in:

/fos/test/am1/displaydefs/newpages/

c. Enter the file name ALPHA2.

d. Select the OK option.

40. Process the page into the software and register with the environment.

a. Go to the terminal window where the workstation was initiated and started and enter the following:

%: **cd /fos/test/am1/scripts/setup/**

%: **ProcessPms**

b. Bring the work station down by entering the following:

%: **MyKill**

(This process should take some time.)

41. Verify that the Data and Real-time server are up and running.

42. Verify all processes are terminated and no end points exist.

43. Restart the user workstation.

a. At the UNIX prompt, change directory to /fos/test/am1/scripts/setup and invoke the User Station startup script.

%: **cd /fos/test/am1/scripts/setup**

%: **source A2_UserStationStartup** *(wait for script completion)*

44. Verify that the Control window is displayed. This Window contains the following:
    a. A line to enter ECL directives
    b. An area to display and manipulate event messages
    c. Various buttons to display rooms, windows, tools, and procedures
45. Invoke the Events display window.
    a. Click on the tools button on the Control window.
    b. Verify the Events Display window has appeared.
46. Verify the page has registered.
    a. Click on the Tlm Wins … button on the Control window.
    b. Verify that a selection window appears.
    c. Verify that ALPHA1 is listed.
    d. Close window.
47. Connect to the telemetry data driver.
    a. Enter the following at the ECL line within the Control window:

        ECL: **STRING CONNECT STRING=100**

        TLMTYPE=HOUSEKEEPING CONFIG=MIRROR

    b. Verify a successful string connection message on the Events Display window.
48. Start the Telemetry data driver.
    a. Open a new terminal window on the user station.
    b. Enter the follow to establish the setup directory.

        %: **test**

        (The present working directory should be /fos/test/am1/scripts/setup)

    c. Enter the following text:

        %: **source A2tlmEnvVars**

    d. Enter the follow to establish the executable directory.

        %: **bin**

        (The present working directory should be /fos/test/am1/bin/sun_sparc_5-4)

    e. Enter the following executable script:

        %: **A2tlm**

f. Answer the setup questions with the following data:

a. Data type: **am1-hk**

b. IP Address: **224.2.2.45**

c. Port No.: **7711**

d. No. Packets: **-1**

e. Errors: **0**

f. Delay: **1000**

49. Display the local display page ALPHA1.

ECL: **PAGE ALPHA1**

50. By viewing the ALPHA1 display page, verify the values and their format which was set in the previous steps.

51. This concludes the test.

Test No.: FUI 2080A

Test Title: Screen Management

Test Configuration: See Appendix G

Test Support: Default room definitions available on the user workstation.

Test Description:

This test is designed to verify the ability to manage the EOC user station desktop environment via the use of rooms and windows. The test begins with the initialization of the EOC. All default rooms are invoked and it is verified that these rooms match the user's default room assignment. A room is created by use of the Room Builder tool. Windows are added and deleted dynamically, repositioned within the displayed room, and re-sized to overlap one another. The room created is saved and the defined room is then re-entered by the same user to ensure that the previously saved room definitions are available.

Success Criteria:

This test is considered successful when the default room display matches the individual user's default room assignment; window selection, size, and position may be dynamically switched via keyboard/mouse selection. Upon re-entering the defined room the windows displayed room should have the same appearance as it did when it was left.

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** ***(wait for script completion)***

3. Script is complete when the user gets the following message in the terminal window

   'Successful installation of signal handler'

4. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

%: **source A2_UserStationStartup** *(wait for script completion)*

Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

5. Verify that all room definitions are accessible.
   a. Click the mouse on the ‘Rooms..’ button.
   b. Verify that the Rooms Dialog window along with a list of available rooms is displayed.
   c. Click the mouse on ‘UserEventRoom’.
   d. Verify that the Control window and the Event Display window are displayed.
   e. Click the ‘Rooms..’ button on the Control window.
   f. Verify that the Rooms Dialog window along with a list of available rooms is displayed.
   g. Click the mouse on ‘UserLoadRoom’.
   h. Verify that the Control window and the Load Manager window are displayed..
   i. Click the mouse on the ‘Rooms..’ button.
   j. Verify that the Rooms Dialog window along with a list of available rooms is displayed.
   k. Click the mouse on ‘SystemRoom1’.
   l. Verify the Control Window title bar displays ‘SystemRoom1’ .
6. Define a room.
   a. Click the mouse on the predefined ‘Tools’ button.
   b. Verify that a list of tools is displayed to the user.
   c. Click the mouse on ‘Room Builder’ to create a new room.
   d. Verify that the user station displays an empty room and the Define Room window is displayed
   e. Click the mouse on the ‘TLM Wins…’ button.
   f. Verify that the Telemetry Window Dialog window is displayed.
   g. Bring up the Table Load Builder
   h. Click the ‘Tools’ button on the Control Window
   i. Select Table_Load Builder

7. Specify the default state of the room.
   a. Click and hold the mouse on the window borders and drag the window to a desired size.
   b. Verify that the window has changed to the desired size.
   c. Click and hold the mouse on the top of each window and drag it to a desired location in the room.
   d. Verify that the window has moved to the desired location.
8. Save the room entering the following in the Define Room window:
   a. > **Mynewroom**
   b. Click the ‘Default’ button to set the default state of the room
   c. click on the ‘Temporary’ button
   d. click ‘ok’ to save the room
9. Take a snap of the saved room by entering the following in the console window:
   a. %: snap
10. Verify that the room just defined was saved.
    a. Leave the room just defined
    b. Click the ROOMS button on Control window
    c. Select UserEventRoom
    d. Verify that the Control window and the Event Display window is displayed.
11. Re-enter the room just defined by entering the following on the command line**:**

    ECL> **R Mynewroom**
12. Verify that the room entered matches the room just created and saved.
13. Modify the room
    a. Delete certain windows from the room.
    b. Double click the mouse on the top left corner of the window to delete it.
14. Verify that the window is no longer in the room.
    a. Leave Mynewroom by clicking the ROOMS button on the Control Window
    b. Select any other room

    15. Re-enter Mynewroom

a. Click the ROOMS button on Control window

b. Select Mynewroom

c. Verify the windows deleted in the previous step are not displayed.

16. End of test

Test No.: SCH 2000A

Test Title: Activity Definer Tool

Test Configuration: See Appendix G

Test Support: Spacecraft and instrument commands, associated command parameters, modes, complex activities, ECL directives and command procedures available through the Resource Model & FOS Data Management.

Test Description:

This test verifies the Planning & Scheduling (PAS) subsystem capability to support the generation of activity definitions via the Activity Definer Tool. Performing this test demonstrates that the Activity Definer Tool allows a user to create a new activity for a given spacecraft subsystem or instrument. For the newly created activity, the user is able to specify: commands to be incorporated, relative times for the commands, modifications to associated command parameters and mode transitions that occur during activity execution. In addition, the user is able to incorporate complex activities, ECL directives and command procedures into the activity defined. Once the activity has been created, this test demonstrates that the user is able to save the activity, open the activity and make modifications, save the activity under a different name using the 'save as' option and delete the activity from the pool of available activities. A version of the activity is saved in the activity pool for later incorporation into a BAP and/or mission schedule during BAP and mission scheduling tests to be performed.

Success Criteria:

Through the use of the Activity Definer Tool, a user is able to create an activity for a given spacecraft subsystem or instrument. The user is able to include in the activity, an associated command sequence with relative times, command parameters, modes transitions, ECL directives and command procedures. Once the activity has been defined, the user is able to 'Save' the activity, use the 'Open' option recall it, make modifications, rename it using the 'Save As' option and delete the activity from the pool of available activities.

Procedure:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

Password: **********

%: **cd /fos/test/am1/scripts/setup**

%: **source A2_DataServerStartup** *(wait for script completion)*

note: Script is complete when the user gets the following message in the terminal window:

'Successful installation of signal handler'

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL > **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   note: Script is complete when the user gets the following event message:

   'String 100 was created.'

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG=MIRROR**

   note: Wait to receive the following event message:

   'Successfully connected to string 100'.

7. Verify that the Control window is displayed. This Window contains the following:

   a. A line to enter ECL directives

   b. An area to display and manipulate event messages

c. Various buttons to display rooms, windows, tools, and procedures

d. Verify that the Activity Definer Tool window is displayed.

8. Using the mouse, click on the Activity Definer ‘**File**’ menu and select the ‘**New**’ option to define a new activity. Verify the user receives a prompt to enter the name of the new activity and the resource that the activity is being defined against.

9. Enter the activity name ‘**fosA2_test**’ and select the ‘**AM1 MODIS’** as the resource.

   a. Select ‘OK’

   b. Verify on the Activity Definer display window that the Activity Name updated with ‘fosA2_test’ and the Resource Name updated with ‘AM1 MODIS’

10. Using the mouse, click on the Activity Definer ‘**Edit**’ menu and select the ‘**Commands’** option to access available MODIS commands for incorporation into the ‘fosA2_test’ activity.

    a. Verify that a Command window is displayed at the user workstation that provides a list of available commands for incorporation. *(If necessary, select the ‘ATC commands’ button as opposed to the ‘Ground commands’ button)*.

11. Using the mouse, click on the MODIS commands to be incorporated into the fosA2_test activity. Associate an off-set time with the commands. Select the following commands and times:

    MOD_ENABLE_CPA_EPWRT START -00:01:00

    a. Invoke ‘Add’ button.

    MOD_ENABLE_PS1_SVHTR START +00:05:00

    b. Invoke ‘Add’ button.

    CDH_SET_SFEA_PSEQTST STOP -00:01:00

    c. Invoke ‘Add’ button.

    CDH_DUMP_SCC1INIT STOP +00:05:00

    d. Invoke ‘Add’ button.

    e. Select the APPLY Button

12. From the Selected Commands created above, highlight ‘**START -00:01:00 MOD_ENABLE_CPA_EPWRT**’ and select the ‘Delete’ option. Verify that the command is deleted from the list of selected commands.

13. From the Selected Commands, delete the ‘**MOD_ENABLE_PS1_SVHTR**’ command.

14. From the Available Commands list, (re)select the same command and enter an off-set time of **00:03:00** as opposed to 00:05:00, invoke the 'Add' option and verify that the command is incorporated in sequential order in the list of Selected Commands.

    START +00:03:00 MOD_ENABLE_PS1_SVHTR

15. From the Command window select the 'OK' option and verify that the MODIS command is merged into the Activity Definer window under 'Items'.

16. From the Activity Definer window select the 'Activity Description' box. Enter a description of the activity:

    "This activity is defined for the AM1 MODIS instrument as part of the FOS release A2 test effort. The activity includes MODIS commands that are defined as critical in the PDB as well as MODIS commands that require a prerequisite state check prior to uplink"

17. From the Activity Definer 'File' menu, select the 'Save' option to save the activity definition.

18. From the Activity Definer 'File' menu, select the 'Close' option to close the fosA2_test activity saved in the previous step.

19. From the Activity Definer 'File' menu select the 'Open' option.

    a. Select **AM1 MODIS** as the resource. Select **fosA2_test** as the activity to open.

    b. Select 'OK'.

    c. Verify that the MODIS activity previously saved as fosA2_test is displayed in the Activity Definer window.

20. From the Activity Definer 'Edit' menu, select the 'Parameters' option.

    a. Verify that the Parameters window is displayed.

    b. Verify the associated command parameters are included in the display.

21. From the Parameters window, select a command that has associated parameters.

    CDH_DUMP_SCC1INIT STOP +00:05:00

    a. Verify the user is provided with a list of command parameters.

22. From the Parameters window, select a command parameter**.**

    a. Verify the display provides a valid high/low range for the parameters selected.

    b. Modify the parameter by entering values that are within the high/low limits displayed.

    c. Select 'Apply' option and verify the parameters are updated.

23. From the Parameter window, enter parameter values that exceed the valid high/low limits specified.

a. Verify that the extreme values result in a warning message that the values are out of limits.

b. Verify the parameter values **do not** update.

c. From the Parameter window, select ‘OK’.

d. Verify that the Activity Definer window updates with the modifications made in step 19a.

24. From the Activity Definer ‘File’ menu, select the ‘Save’ option to save changes to fosA2_test. Select the ‘Close’ option to close the activity.

25. From the Activity Definer ‘File’ menu, select the ‘New’ option to create another activity named **fosA2_I&T**.

    a. Select **AM1 MODIS** as the resource.

    b. Select ‘**OK**’

26. From the Activity Definer ‘Edit’ menu, select the ‘Commands’ option.

    a. Select random commands with off-set times to include/add in the activity.

27. From the Activity Definer ‘Edit’ menu, select the ‘Modes’ option and verify that the ‘Modes’ window is displayed.

    a. Verify that a list of Available Modes is displayed.

    b. Verify that the Resource Name displayed is AM1 MODIS.

28. From the list of Modes, select modes and off-set times for incorporation into the fosA2_I&T activity. (The following MODIS modes may be modeled in the A2 time period: Launch, Survival, Safe, Standby, Outgas & Science, Science/Day)

    a. MODE Science Day +12:00:00 START

    b. MODE Science Night +21:00:00 STOP

    c. MODE Standby +10:00:00 START

29. From the Modes window, select a mode to be deleted from the ‘Selected Modes’ list.

    MODE Standby +10:00:00 START

    a. Select ‘Delete’ and verify the mode is removed.

30. From the Modes window, select ‘OK’ and verify that the Activity Definition window is updated to incorporate the selected modes into the activity.

31. From the Activity Definer ‘Edit’ menu, select the ‘Complex Activities’ option.

    a. Verify that the Complex Activities window is displayed.

    b. Verify a list of available activities is displayed, including fosA2_test.

32. From the Complex Activities window, select the fosA2_test activity to be incorporated into fosA2_I&T.

    a. Select a random off-set time (+02:00:00) for the complex activity.

    b. Select 'Add' and 'OK'.

    c. Verify that fosA2_test is incorporated as a complex activity into fosA2_I&T in the correct sequential time order.

33. From the Activity Definer 'Edit' menu, select the 'ECL Directives' option. Verify that the ECL Directives window is displayed at the user workstation.

34. From the list of available ECL directives, enter test directives for incorporation into the fosA2_I&T activity.

    a. Select an associated off-set time for the directives.

    b. Select 'Add' after each directive.

    c. Select 'OK' to incorporate the directives into the fosA2_I&T activity.

Directive 1	+00:10:00	START
Directive 2	-00:10:00	START
Directive 3	-00:00:00	STOP
Directive 4	+00:00:00	START

    d. Verify that the Activity Definer window updates to reflect the incorporation of the ECL directives selected.

    e. Verify the sequential time order of the ECL directives is correct.

35. From the Activity Definer 'Edit' menu, select the 'Command Procedures' option.

    a. Verify the Command Procedures window is displayed.

36. From the Command Procedures window, select test procedures for incorporation into the fosA2_I&T activity.

    a. Select an associated off-set time for each procedure and select 'Add'.

Proc 1	+00:07:00	START
Proc 2	-00:08:00	START
Proc 3	+:00:08:00	STOP

    b. Verify the procedures selected are listed as 'Selected' after the 'Add' button has been invoked.

    c. Select 'OK' to incorporate the selected procedures into the fosA2_I&T activity.

d. Verify that the command procedures selected are incorporated in sequential time order into the activity.

37. From the Activity Definer ‘Edit’ menu, select the ‘Scheduling Info’ option.

    a. Verify that the Activity Scheduling Information window is displayed at the user workstation.

    b. Select ‘Start Time’ and ‘Stop Time’ for the activity.

    c. Enter the start GMT time date yyyy/ddd and time hh:mm:ss.

       START 1996/123 01:00:00

    d. Enter the stop time date yyyy/ddd and time hh:mm:ss.

       STOP 1996/123 02:00:00

    e. Select ‘Apply’.

38. Modify the scheduling info and select a **‘Start Event’** and ‘**Stop Event’** for the activity as opposed to ‘Start Time’ and ‘Stop Time’.

    Start Event = **Sunrise** Orbit = 10

    Sequence = 1 Delta Time = 00:10:00

    Stop Event = **Sunset** Orbit = 11

    Sequence = 1 Delta Time = 00:10:00

39. Select a random Orbit, Sequence, Delta Time for the Start Event and Stop Event.

    a. Verify that the Start Event and Stop Event are both accepted when the ‘Apply’ button has been invoked.

40. Modify the scheduling info and select ‘Duration’ as opposed to a ‘Stop Event’.

    a. Enter a random duration value in the space provided an select a valid duration unit (e.g. Orbit, Hrs, Min, Sec, Day).

       Duration = 02:00:00

    b. Invoke ‘Apply” and verify the duration selected is accepted.

    c. Select ‘OK’ to apply the scheduling information to the activity.

41. From the Activity Definer ‘File’ menu, select the ‘Save’ option to save fosA2_I&T as an AM1 MODIS Activity.

42. From the Activity Definer ‘File’ menu, select the ‘Close’ option to close the fosA2_I&T activity.

43. From the Activity Definer ‘File’ menu, select the ‘Open’ option. select fosA2_I&T as the activity to be open.

a. Verify that the fosA2_I&T activity content is displayed.

44. From the Activity Definer ‘File’ menu, select the ‘Save As’ option to save fosA2_I&T under the activity name fosA2_INT.

    a. After editing the name of the activity select ‘OK’.

45. From the Activity Definer ‘File’ menu, select the ‘Delete’ option to delete fosA2_INT.

    a. Select Resource Name, ‘AM1 MODIS’.

    b. Select fosA2_INT as the activity to be deleted and select the ‘OK’ button.

46. From the Activity Definer ‘File’ menu, select the ‘Open’ option.

47. Attempt to open fosA2_INT as an activity for AM1 MODIS.

    a. Verify that the activity is not available due to the deletion performed in previous steps.

    b. Select ‘Cancel’ to exit the ‘Open’ panel display.

48. This is the end of the test.

Test No.: SCH 2010A

Test Title: Baseline Activity Profile (BAP) Definer Tool

Test Configuration: See Appendix G

Test Support: Activity definitions **fosA2_test** and **fosA2_I&T** developed during test SCH 2000A.

Test Description:

This test verifies the FOS Planning & Scheduling (PAS) subsystem capability to support the generation of Baseline Activity Profile (BAP) definitions via the use of the BAP Definer Tool. Performing this test demonstrates that the BAP Definer Tool allows a user to create a new BAP definition for a given spacecraft subsystem or instrument. Creating a BAP allows the user to schedule a repetitive sequence of activities that define the normal operations for the instrument or subsystem. For a created BAP the user is able to specify: valid activities for incorporation, modifications to associated command parameters, and modify off-set times associated with the activities. Through the file menu, the user is able to 'save' the BAP, select 'save as' to rename the BAP, 'close' the BAP, select 'open' to recall the BAP for modifications and 'delete' the BAP from the resource model pool. A version of the BAP is saved in the BAP pool for later incorporation into the mission timeline during General Scheduler/Timeline testing to be performed.

Success Criteria:

Through the use of the BAP Definer Tool, an authorized user is able to create, save, modify and delete a BAP for a selected spacecraft subsystem or instrument. The user is able to include in the BAP a defined activity sequence with off-set times and associated command parameters. Once the BAP definition has been created, the user is able to 'Save' the BAP, use the 'Open' option to recall the BAP, make modifications, rename the BAP using the 'Save As' option and 'Delete' to delete the BAP from the resource model pool.

Procedure:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

%: **source A2_DataServerStartup** *(wait for script completion)*

note: Script is complete when the user gets the following message in the terminal window:

‘Successful installation of signal handler’

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL > **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   note: Script is complete when the user gets the following event message:

   ‘String 100 was created.’

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG=MIRROR**

   note: Wait to receive the following event message:

   ‘Successfully connected to string 100’.

7. Verify that the Control window is displayed. This Window contains the following:

   a. A line to enter ECL directives

   b. An area to display and manipulate event messages

   c. Various buttons to display rooms, windows, tools, and procedures

8. From the BAP Definer ‘File’ menu select the ‘New’ option to define a new BAP.

a. Verify a user prompt is received to enter a BAP name and spacecraft resource.

9. Enter fosA2_BAP_test as the BAP name. Select the 'AM1 MODIS' as the resource.

   a. Verify the BAP Definer window updates to reflect this information.

      New BAP Name: **fosA2_BAP_test**

      Resource Name: **AM1 MODIS** *(selectable using mouse)*

   b. Select 'OK'

10. From the BAP Definer 'Edit' menu, select the 'Activity List' option.

    a. Select activities **fosA2_test**, and **fosA2_I&T** for incorporation into the BAP one at a time.

    b. Invoke the 'OK' button to incorporate the activities .

    c. Verify at the BAP Definer window that **fosA2_test**, and **fosA2_I&T** activities have been incorporated into the BAP.

11. From the BAP Definer 'Edit' menu, select the 'Scheduling Info' option.

    a. Verify the Scheduling Info window is displayed

12. From the Scheduling Info window select the **'fosA2_test'** activity and associate a Start Time with the activity.

    Start Date: **1997/200** Start Time: **03:00:00**

13. From the Scheduling Info window enter a Stop Duration to associate with the fosA2_test activity.

    Duration: **1** **Hour**

14. From the Scheduling Info window enter a Frequency to associate with the fosA2_test activity.

    Frequency: Every **1** **Day**

    a. Select the 'Apply' button.

15. From the Scheduling Info window, select **fosA2_I&T** and associate a Start Event with the activity.

    Start Sequence: **1**

    Event: **Sunrise**

    Delta Time: **00:10:00**

    a. Select the 'Apply' button.

16. From the Scheduling Info window, select a Stop Event to associate with fosA2_I&T

Stop Sequence: **2**

Event: **Sunset**

Delta Time: **00:10:00**

Frequency: Every **1** **Day**

a. Select the ‘Apply’ and ‘OK’ buttons.

b. Verify that the scheduling information entered is reflected in the BAP definer window.

17. From the BAP Definer ‘Edit’ menu, select the ‘Command Parameter’ option and verify that the Command Parameters window is displayed at the workstation.

18. From the Commands window, select the **fosA2_test** activity for parameter modifications.

    a. Verify the associated commands are listed for the activity selected.

19. From the Commands window, select the following fosA2_test command for parameter modification.

    CDH_SET_SFEA_PSEQTST

    a. Verify that the associated parameters are displayed.

20. From the Commands window, select the parameter SEQ to be modified.

    a. Verify that the parameter defined high/low range is displayed.

21. Modify the parameter values.

    a. Enter acceptable value with in the range specified.

    b. Verify that acceptable values are accepted for parameter modification.

    c. Select ‘Apply’ and ‘OK’ to update the parameter.

22. From the BAP Definer ‘File’ menu, select the ‘Save’ option to save the BAP created.

23. From the BAP Definer ‘File’ menu, select the ‘Save As’ option and save the BAP as **fosA2_INT_BAP**.

24. From the BAP Definer ‘File’ menu select the ‘Save As’ option and save the BAP as **fosA2_INT_BAP2.**

25. From the BAP Definer ‘File’ menu, select the ‘Close’ option and close the BAP.

26. From the BAP Definer ‘File’ menu, select the ‘Delete’ option.

27. Verify that the Delete BAP window is displayed.

28. From the Delete BAP menu, select **fosA2_INT_BAP2** for deletion and select ‘OK’

29. From the BAP Definer ‘File’ menu select the ‘Open’ option and attempt to open **fosA2_INT_BAP2.**

    a. Verify that fosA2_INT_BAP2 is no longer available.

30. From the BAP Definer ‘File’ menu select the ‘Open’ option and open **fosA2_BAP_test** for modification.

31. From the BAP Definer ‘Edit’ menu select the ‘Scheduling Info’ option and make random scheduling modifications to the activities within the BAP.

32. From the BAP Definer ‘Edit’ menu select the ‘Command Parameters’ option and make random modifications to the command parameters associated with BAP fosA2_BAP_test.

    a. Verify the modification to fosA2_BAP_test can be saved to the resource pool for incorporation into the mission timeline during future testing.

33. Exit the BAP Definer window, stop all PAS processes and log-off the workstation to end the test.

Test No.: SCH 2020A

Test Title: General Scheduler & Timeline

Test Configuration: See Appendix G

Test Support: Activity definitions **fosA2_test** and **fosA2_I&T** developed during test SCH 2000A. BAP definitions **fosA2_BAP_test** and **fosA2_INT_BAP** developed during test SCH 2010A.

Test Description:

This test is designed to verify the Planning & Scheduling (PAS) capability to support the scheduling of activities, and commands on the mission timeline. In addition, this test verifies requirements related to the user manipulation of the timeline with regard to time and resources. The test begins with the initialization of the PAS name server, resource model, general scheduler and timeline processes (if these processes are not initialized already). Upon successful initialization of the General Scheduler window and Timeline window the test demonstrates the capability to schedule activities against the timeline on an impact and non-impact basis. Commands will then be scheduled against the timeline in the same manner. The final steps of this test demonstrate the capability to manipulate the timeline in terms of time and resources displays.

At the conclusion of this test, the DMS browser tool will be utilized to verify that PAS was generating events during the test and logging these events with DMS.

Success Criteria:

The test conductor is able to initialize the PAS name server, resource model, general scheduler and timeline processes (if not already initialized). Upon initialization of the general scheduler and timeline, the respective windows are displayed at the workstation. Once the general scheduler and timeline windows are displayed, the test conductor is able to use the general scheduler to schedule activities, BAPs, commands and command procedures against the master plan of the mission timeline. Scheduling will be conducted in impact and non-impact modes. The test conductor is able to manipulate the timeline in terms of time and resources being displayed. At the conclusion of the test, the test conductor is able to access the DMS provided browser tool and verify that PAS events have been generated throughout the test and sent to DMS for history logging purposes.

Procedure:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: ********

   Password: ********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

   note: Script is complete when the user gets the following message in the terminal window:

   'Successful installation of signal handler'

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL > **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   note: Script is complete when the user gets the following event message:

   'String 100 was created.'

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG=MIRROR**

   note: Wait to receive the following event message:

   'Successfully connected to string 100'.

7. Verify that the Control window is displayed. This Window contains the following:
   a. A line to enter ECL directives
   b. An area to display and manipulate event messages
   c. Various buttons to display rooms, windows, tools, and procedures

Activity Scheduling

8. From the General Scheduler window, change the resource to schedule against to AM1 MODIS.
9. From the General Scheduler 'Filter' menu select the 'Activities' option to display the activities available for scheduling against the AM1 MODIS resource.
   a. Verify that activities 'fosA2_test' and 'fosA2_I&T' are available for scheduling.
10. Select the Master Plan as the plan that the activities are to be scheduled against.
11. Select the 'fosA2_test' activity for scheduling against the Master Plan.
12. From the General Scheduler 'Action' menu select 'Impact' option so that scheduling of fosA2_test impacts the Master Plan.
13. From the General Scheduler 'Edit' menu select 'Command Parameters' option to edit command parameters associated with fosA2_test.
    a. Verify that the Parameter window is displayed and includes a list of commands that are incorporated in fosA2_test.
14. Highlight a command and verify that the associated parameters are displayed.
15. Highlight a parameter and verify that the range of valid values is displayed.
16. Highlight or enter a valid parameter value TBD and select 'Apply' to incorporate the update.
17. Select 'OK' to update the activity.
    a. Verify that the Parameter window is dismissed.
18. Select 'Start Time' and 'Stop Time' as the options for scheduling the activity.
    a. Enter a Start Time of 1999/165 02:00:00.
    b. Enter a Stop Time of 1999/165 04:00:00.
19. From the General Scheduler 'Action' menu select the 'Schedule' option to schedule the activity fosA2_test.
20. From the Timeline go to the File pull-down menu.
21. Select the 'Open ' option.

22. Select the master plan as the plan to schedule against.

    a. Verify that the activity appears on the Timeline master plan under the resource, dates and times selected using the General Scheduler.

23. From the General Scheduler window modify the Start and Stop selected for the activity. Valid Start and Stop input combinations are:

    a. Start Time Stop Event

    b. Start Time Duration

    c. Start EventStop Time

    d. Start EventStop Event

    e. Start EventDuration

24. After each Start and Stop modification select the 'Schedule' option from the 'Action' menu.

    a. Verify the appropriate updates to the Timeline Master Plan.

25. From the General Scheduler window select the **fosA2_I&T** activity for scheduling against the Master Plan.

26. Select Start and Stop inputs for fosA2_I&T that coincide with the time period in which fosA2_test is currently scheduled on the Master Plan.

27. From the General Scheduler 'Action' menu select the 'Non Impact' option.

    a. Verify the non-impact toggle button (top right of GS display) appears selected.

28. From the General Scheduler 'Action' menu select the 'Schedule' option.

    a. Verify that the Timeline **does not** update to reflect fosA2_I&T in place of fosA2_test.

29. From the General Scheduler 'Action' menu select the 'Impact' option.

    a. Verify the impact toggle button (top right of GS display) appears selected.

30. From the General Scheduler 'Action' menu select the 'Schedule option.

    a. Verify that the Timeline updates to reflect fosA2_I&T in place of fosA2_test.

Command Scheduling

31. From the General Scheduler 'Filter' menu select the 'Commands' option to display the commands available for scheduling against the AM1 MODIS resource.

    a. Verify the following MODIS command are available for timeline scheduling:

        MOD_TURN_OFF_SSR1

    b. Select the Master Plan as the plan to schedule the MODIS commands against.

c. Select the following MODIS command for scheduling against the timeline.

MOD_SET_PVLW_ECAL_V

32. From the General Scheduler ‘Action’ menu select the ‘Impact’ option to schedule the command against the master timeline.

    a. Verify the impact toggle button appears selected.

    b. Enter a Start Time of 1999/165 10:00:00

    c. Enter a Stop Time of 1999/165 11:00:00

33. From the General Scheduler ‘Action’ menu select the ‘Schedule’ option.

    a. Verify that the timeline updates to reflect command scheduled over the specified time period.

34. From the General Scheduler window select a second MODIS command for scheduling against the timeline.

    MOD_SET_PVSM_ECAL_V

35. From the General Scheduler ‘Action’ menu select the ‘Non Impact’ option to schedule this second command against the master timeline. Verify the non-impact toggle button appears selected.

    a. Enter a Start Time of 1999/165 10:30:00

    b. Enter a Stop Time of 1999/165 11:30:00

36. From the General Scheduler ‘Action’ menu select the ‘Schedule’ option. Verify that the timeline **does not** update with this second command based on the overlap in start and stop time with the command previously scheduled.

37. From the General Scheduler ‘Action’ menu select the ‘Impact’ option to reschedule the second command in this mode. Verify the impact toggle button appears selected.

38. Using the same start and stop time, select the ‘Schedule’ option from the General Scheduler ‘Action’ menu to schedule the second command. Verify that the timeline updates to reflect the scheduling of the second command.

Error Handling

39. From the General Scheduler ‘Filter’ menu select the ‘Activities’ option to display the activities available for scheduling against the AM1 MODIS resource.

40. Without selecting an activity, enter a Start Time 1999/165 03:00:00 and Stop Time 1999/165 03:30:00 at the General Scheduler window.

41. From the General Scheduler ‘Action’ menu select the ‘Schedule’ option in an attempt to schedule without an activity being selected.

a. Verify that a dialog box is displayed at the workstation requesting that an activity be selected.

42. Select an activity fosA2_test and select ‘Schedule’ from the ‘Action’ menu.

    a. Verify that a dialog box is displayed at the workstation requesting that a plan be selected on which to schedule.

43. From the General Scheduler display select the master plan on which to schedule.

44. Modify the start time and enter an invalid absolute time of 1999/500 75:75:75. Verify the master plan has been selected to schedule against.

    a. Verify that a dialog box is displayed at the workstation requesting that the user enter a valid start date.

45. Modify the start time and enter a start time that is later in time then the stop time. Verify the master plan has been selected to schedule against.

    a. Verify that a dialog box is displayed at the workstation requesting that a user enter a valid start time.

Timeline Display

46. Using the mouse, select the master plan to be scheduled against, manipulate the Timeline display and verify the following:

    a. User is able to select a specified time period for display

    b. User is zoom in and out by time and resource.

    c. User is able to display shared or limited resources and SSR use as 2D line plots.

    d. User is able to display orbital events and TDRSS communication as 2D icons.

47. From the General Scheduler, display a subsystem activity that utilizes the SSR resource.

    a. Verify that the corresponding timeline 2D plot for the SSR resource updates to show the total amount of resource available.

    b. Verify that moving the mouse into the 2D bar area results in a reporting of SSR resource information at the bottom of the timeline display.

    c. Verify the 2D line plot becomes red in color once a predefined resource usage limit has been surpassed.

48. From the Master Timeline File pull-down menu open a ‘What-if’ plan for display.

    a. Verify that the timeline updates from the current plan (master plan) and displays the ‘what-if’ plan.

49. Exit the General Scheduler and Timeline displays

50. This is the end of this test

Test No.: SCH 2030A

Test Title: ASTER Interface Filter

Test Configuration: See Appendix G

Test Support: ASTER Short Term Schedule file and ASTER One Day Schedule file.

Test Description:

This test is designed to verify the Planning & Scheduling (PAS) capability to support the ingest and processing of ASTER Short Term Schedules (STS) and ASTER One Day Schedules (ODS). The test begins with the processing of a STS file. The STS file is processed by PAS and scheduled against the timeline master plan. The two files will contain activities that overlap and scheduling results in an overwrite/replacement of ASTER activities already scheduled. The same scenario is tested for ASTER One Day Schedule (ODS).

Success Criteria:

This test is considered successful upon demonstration of ASTER STS processing and scheduling against the master plan for SCHEDULE. The same success criteria applies for the processing and scheduling of ASTER ODS against the master plan for SCHEDULE mode.

Procedure:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

   note: Script is complete when the user gets the following message in the terminal window:

   ‘Successful installation of signal handler’

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL > **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   note: Script is complete when the user gets the following event message:

   'String 100 was created.'

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG=MIRROR**

   note: Wait to receive the following event message:

   'Successfully connected to string 100'.

7. Verify that the Control window is displayed. This Window contains the following:

   a. A line to enter ECL directives

   b. An area to display and manipulate event messages

   c. Various buttons to display rooms, windows, tools, and procedures

ASTER Short Term Schedule (STS)

Schedule Mode

8. Verify that the ASTER Short Term Schedule (STS) file, 'AST_STS_….', is located in the necessary directory, /fos/test/am1/data/PAS/, for ingest emulation and scheduling of the file's ASTER activities.

9. View the file to determine the activity name and schedule date/time.

10. Open the timeline that will cover the specified date and time of the ASTER activity.

11. View the ast_load PAS script that invokes the STS scheduling process.

    a. Edit the script if necessary to incorporate the file name.

12. Initiate the PAS script ‘ast_load’ that invokes the STS schedule process.

    a. Verify that the ASTER STEREO activity is scheduled on the mission timeline master plan at the specified date/time.

13. Clear the scheduled ASTER activity by scheduling another ASTER activity at the same exact time to setup for the next filtering process.

ASTER One Day Schedule

Schedule Mode

14. Verify that the ASTER One Day Schedule (ODS) file, ‘AST_ODS_….’, is located in the necessary directory, /fos/test/am1/data/PAS/, for ingest emulation and scheduling of the file’s ASTER activities.

15. View the file to determine the activity name and schedule date/time.

16. Open the timeline that will cover the specified date and time of the ASTER activity.

17. View the ast_load PAS script that invokes the ODS scheduling process.

    a. Edit the script if necessary to incorporate the file name.

18. Initiate the PAS script ‘ast_load’ that invokes the STS schedule process.

    a. Verify that the ASTER STEREO activity is scheduled on the mission timeline master plan at the specified date/time.

19. This is the end of the test.

Test No.: SCH 2040A

Test Title: ATC Load Generation

Test Configuration: See Appendix G

Test Support: Activities and commands scheduled during the PAS General Scheduler and Timeline test, (SCH 2020A), should be available on the mission timeline for DAS generation.

Test Description:

This test verifies the Command Management Subsystem (CMS) capability to support the generation of an ATC load from Detailed Activity Schedule (DAS) received from Planning & Scheduling (PAS). This test also verifies the CMS capability to support the generation of a ground script over the same time period as the ATC upon receipt of a valid request from User Interface.

The test begins with the creation of the DAS using Planning & Scheduling delivered tools. The DAS will include activities and commands that were scheduled against the master plan during test SCH 2020A. Once the DAS is created, a request is sent to the CMS Schedule Controller process for expansion of the DAS and generation of the ATC load. Upon completion of the ATC load, the PAS receives a completion status from CMS. Because the ATC load generation is primarily a background process, this test will require analysis on the part of the test team to ensure the build and storage of the load, creation of the load report, integrated report and the update of the load catalog. Step 10 calls out the items that require verification during the test team analysis of the load generation.

After ATC load generation, this test verifies the CMS capability to support a FUI request for ground script generation. A request will be sent to CMS for ground script generation over the same time period as the DAS. The test will require analysis on the part of the test team to verify the contents of the ground script against the DAS and ATC load.

The final steps of the test verify the CMS capability to support the handling of an erroneous DAS sent from PAS. An effort will be made by the test team to create an 'empty' DAS (i.e. over a time period in which activities and commands are not scheduled against the master plan). Testing will verify that the PAS/CMS processes are capable of recognizing an erroneous DAS and generate an error status to the user as opposed to processing the DAS.

Success Criteria:

The user is able to select a portion of the PAS timeline master plan and generate a DAS. The DAS is sent to the CMS Schedule Controller process for expansion and ATC load generation. ATC load generation will consist of the generation of the binary load, load report, integrated report and an update to the load catalog. Step 10 of the test procedure will be used during post-test analysis to determine the success of the ATC load generation process. Upon completion of the ATC load generation, CMS will return a generation complete status to the PAS load generator process. The user is able to invoke a FUI request for CMS to generate a ground schedule that corresponds to the start and stop time of the DAS used for ATC load generation.

The CMS process will recognize an erroneous DAS and return an error message to the user as opposed to processing the DAS.

Procedure:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

   note: Script is complete when the user gets the following message in the terminal window:

   'Successful installation of signal handler'

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   i) ECL > **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   note: Script is complete when the user gets the following event message:

‘String 100 was created.’

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG=MIRROR**

   note: Wait to receive the following event message:

   ‘Successfully connected to string 100’.

7. Verify that the Control window is displayed. This Window contains the following:

   a. A line to enter ECL directives

   b. An area to display and manipulate event messages

   c. Various buttons to display rooms, windows, tools, and procedures

8. Verify the PAS Name Server, Resource Model, General Scheduler, Timeline, Load Queue and Load Generator (driver) processes are running. Verify that the CMS Schedule Controller processes are running.

9. Verify that the Timeline is displayed at the workstation with the master plan selected. Verify that the Load Generator (driver) window is displayed at the workstation.

10. From the Load Generator display, select DAS start and stop times corresponding to a period on the timeline that includes scheduled activities and commands.

11. Set the uplink start and stop times to be prior to the start of the DAS.

    a. Select the ‘OK’ push button to add the DAS product to the load queue and to send a ATC load generation request to the CMS Schedule Controller.

    b. Verify that the ‘Generate’ request invokes the transfer of the DAS to CMS for expansion and ATC load generation. The user should receive an ‘processing’ status. (On the DataServer)

12. At the completion of the DAS expansion and ATC load generation, verify that the user receives a ‘load complete’ event message from CMS and ‘completed’ status from PAS. (On the DataServer)

    a. Verify event messages are output from DMS FileMetaData process confirming the storage of the ATC load contents, load image, load uplink and load report.

13. The following verification steps will need to be carried out after the ATC generation process is complete and may require an post-test analysis effort:

    a. Verify via the DMS FileMetaData process that the ATC load contents load image, load uplink and load report have been generated and stored. The files are stored in the following directories:

(1) /fos/test/am1/loads

(2) /fos/test/am1/reports

b. Verify the following information is included in the report: load name, load type, valid uplink period, load size in bytes, start and end ATC buffer locations.

c. Verify the update of the load catalog for the ATC load generated.

d. Verify that the updated load catalog is stored/maintained within the DMS database. This step requires the following Sybase commands

%: **isql -Ufos-dba -Pfos_dba**

1> **use am1_fos_ops**

2> **go**

e. Use the sybase select command to verify that the information stored in fos_load_cat reflects a recent update with ATC load information.

1> **select * from fos_loads_cat**

2> **go**

f. Verify that the command portion of the ATC has been converted from mnemonic to binary.

g. Verify that the time tag of each ATC has been converted to the applicable spacecraft compatible format.

h. Verify that the time tags have a resolution of 1 second.

i. Verify the time tags have the following format: 2 bits representing day and 22 bits representing milliseconds of day.

j. Verify that load control commands (load init) have been prepended to the ATC load.

k. Verify that the beginning and end boundaries of the ATC load generated corresponds to the boundaries selected for the expanded DAS.

l. Look in the following report:

/fos/test/am1/groundsched/report/ Integrated Report_123_1

m. Verify via integrated report, that any ground activities included in the DAS have been expanded into time tagged ground directives.

n. Verify that the absolute time commands generated are consistent with the format specified in ICD-106.

o. Verify that the ATC loads have been formatted for uplink according to CCSDS packet protocol (ICD-106).

p. Verify that the number of uplink loads generated equals load size/4k + 1. Example: if load size = 22000 bytes then 6 uplink loads should be generated.

14. At the workstation FUI control window, enter the TAKE COMMAND ECL directive to obtain CAC privileges.

15. From the control window tools option, select the ground script controller window and invoke a request for CMS to generate a ground script over the same start/stop period as the ATC load generation steps.

    a. Verify that CMS returns a success status event message to the FUI display at the completion of the ground script generation.

    b. Verify the list of directives contained in the ground script, spacecraft id and start and end times of the ground script.

16. Save a copy of the ground script for post-test analysis

17. From the PAS Load Generator display, select DAS generation for a time period in which activities or commands **are not** scheduled on the timeline master plan.

    a. Select the ‘Generate’ push button to send the ‘empty’ DAS to CMS for expansion and ATC load generation.

    b. Verify that the PAS DAS creation process and/or the CMS Schedule Controller process recognize that the DAS does not contain any activities or commands. Verify that an error message is returned to the user.

    c. Verify that the CMS process does not generate an ATC load or associated reports for the empty DAS.

18. Attempt to re-send the DAS generated in previous steps to CMS for ATC processing.

19. Attempt to send a DAS to CMS that contains invalid commands (this may require defining an activity with the ECL Directives capability found in the Activity Definer Tool).

    a. Verify that CMS recognizes the invalid commands and reports the error to the user. Verify whether ATC processing continues, suspends, aborts etc. due to the invalid commands.

    b. Verify that CMS recognizes the DAS as a duplicate DAS that has already been processed.

20. Access event history for this test via the DMS browser capability.

    a. Verify that PAS and CMS events were logged to DMS during testing.

21. Exit all displays at the user station and log off the workstation.

Test No.: SCH 2050A

Test Title: Microprocessor Load Generation

Test Configuration: See Appendix G.

Test Support: Microprocessor load content files created and available in a source directory**,** for ingest and load uplink generation. CMS load generation software, FUI Load Manager software and FUI to CMS interface for load generation request.

Test Description:

This test is designed to verify the FOS capability to support the ingest of a microprocessor (MP) load contents file, validation of the contents file received and generation of a MP uplink load. This test begins with the initialization of the server and workstation so that the FUI Load Manager window can be invoked at the user workstation. From the FUI Load Manager window, the ingest process is invoked and the MP load contents file is moved from a source directory to a destination directory (ingest is internal only during release A2 testing). Once the ingest of a valid MP content file is complete, an attempt is made to specify the ingest of a filename that does not exist. This part of the test verifies the user is properly notified of an invalid ingest request. The test continues with the validation of the MP contents file received. The validation process includes verification of the source, destination and size of the binary content file received. An attempt is made to edit the contents file and enter erroneous information to be introduced during the validation process (the user may be required to enter the data for StartAddress, StopAddress, Size, Name etc. at the FUI window). This part of the test verifies the proper reporting of validation errors to the user. After load validation, the test continues with MP uplink load generation. The Load Manager window 'Generate' toggle button is used to initiate a request to CMS to generate the MP uplink load. The final steps of the test verify that the load catalog is updated with an entry for the uplink load generated and that CMS has stored the load report, uplink load, load image and load contents file in the DMS database.

Success Criteria:

The success of this test requires the demonstration that the FOS provides the user with a capability to ingest a MP load content file into the EOC (ingest is internal during release A2). Following successful ingest, demonstration that the MP contents file can be validated and used by CMS to generate a MP uplink load. CMS generation of the uplink load will be invoked by a successful request from FUI Load Manager. Demonstrate that CMS is capable of generating the load report and load image files. Demonstrate that CMS is able to update the load catalog with an entry for the uplink load. Demonstrate that CMS is able to store the uplink load, load report, load image and load contents file in the DMS database. Demonstrate that CMS and FUI are logging events to DMS during the execution of this test.

Procedure:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

Username: **********

Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following message in the terminal window:

   'Successful installation of signal handler'

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   Note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL> **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following event message:

   'String 100 was created.'

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG= MIRROR**

Note: Wait to receive the following event message:

'Successfully connected to string 100'.

7. Verify that the Control window is displayed. This Window contains the following:
    a. A line to enter ECL directives
    b. An area to display and manipulate event messages
    c. Various buttons to display rooms, windows, tools, and procedures
8. Invoke the FUI Load Manager display at the user workstation by selecting the load manager tool from the FUI control window TOOLS option.
    a. Verify the Load Manager window is displayed at the workstation.
9. From the Load Manager window display, select the 'LOAD INGEST' push button to invoke the ingest of a Microprocessor (MP) load content file.
    a. Verify the Load Ingest window is displayed at the user workstation.
10. From the Load Ingest window, select the source directory **/fos/test/am1/loadcontents/** that the MP load content file is located.
    a. Verify that a list of available load content files are displayed in the Load Ingest window upon directory selection.
11. From the Load Ingest window 'Files' list, select a MP load content for ingest.
    a. Select 'OK' and verify that a status message is received at the user workstation verifying the successful ingest of the MP load content file. Verify that the MP filename appears in the Load Manager window 'Local list'.
12. From the Load Ingest window (invoke again, if necessary), select the source directory and attempt to select a MP load content filename that does not exist. Select 'OK'
    a. Verify that the Load Ingest process returns a status message to the user that the filename was not found or filename does not exist.
13. From the Load Manager window display, select the 'Validate' push button to invoke the validation of the ingested MP load *filename*.
    a. Verify that the user receives a validation complete status message at the workstation. Verify that the validation process includes the following:

        source, destination and size of the binary format MP load.

    b. Edit the MP load contents file to introduce erroneous information related to source, destination and size of the file. Specific edits TBS.
    c. From the Load Manager window, select the 'Validation' push button to invoke the validation process.

d. Verify that the erroneous information introduced in step 10b. is reported to the user at the workstation. (In release A, the user may not be provided with the necessary capabilities to correct the errors in real-time and continue the validation process).

14. From the Load Manager window display, select the MP load content file that was ingest in step 8. Select the 'Generate' push button to invoke the generation of the MP uplink load.

    a. Verify that the Load Generator window is displayed at the user workstation. Verify that the content filename is displayed in the window.

15. From the Load Generator window, select the Destination Resource, uplink start and stop time, load size, offset and description of the uplink load:

    a. Valid Uplink Start Time: **1999/300 03:00:00**

    b. Valid Uplink Stop Time: **1999/300 09:00:00**

    c. Size: **1000**

    d. Offset: **10**

    e. Description: **Test Data**

    f. Select 'OK' and verify that the user receives a event status message confirming the uplink load generation process has been invoked.

    g. Verify that the user receives an event status message confirming the completion of the uplink load generation. Verify that the user is notified of any errors encountered during uplink load generation.

    h. Verify that the uplink load filename is displayed in the Load Manager window Catalogue list.

    i. Verify that a load generation report has been created and that the user is able to access the information contained in the report.

    j. Verify that the report contains the following information about the uplink load:

(1)	Load name	Uplink time *(this field will be empty)*
(2)	Load type	Load size in bytes
(3)	Valid uplink period	Starting and ending memory location
(4)	Contents of the load in hex	

16. From the Load Manager window, select the 'Catalog Search' toggle button to invoke the Catalog Search window.

    a. Verify the Catalog Search window is displayed at the user workstation.

17. From the Catalog Search window, select the load type **MPR** and the uplink start and stop times entered in step **__**.

    a. Select the 'Search' toggle button.

    b. Verify that the MP uplink load generated in step 12 is highlighted in the load catalog list.

    c. Verify that the MP uplink load has been generated in CCSDS packet format per ICD-106. Verify the load generation preappends the load init command, load descriptor, start address, word count and CRC.

18. Verify via off-line analysis, that the load report, uplink load, load image and load contents are being stored by the Command Management Subsystem (CMS) with the Data Management Subsystem (DMS). This can be accomplished by using the following SYBASE commands

    %: **isql -Ufos_dba -Pfos_dba**

    1> **use am1_fos_ops**

    2> **go**

    1> **select * from fos_load_cat**

    2> **go**

19. Via off-line analysis, invoke the DMS browser capability to ensure that FUI and CMS were logging events to DMS during the execution of this test procedure.

Test No.: SCH 2160A

Test Title: Generate RTS Load Contents

Test Configuration: See Appendix G

Test Support: CreateRTS, DeleteRTS, CMS, DMS, FOS User Interface

Test Description:

This test is designed to verify the capability to support the generation of a Relative Time Command Sequence (RTS) load content file using a test tool driver available through the command management subsystem (CMS). This test demonstrates that an authorized user can create a text file and invoke the test tool needed to generate a RTS load contents file, an uplink load file, an image load file and a report associated with that load. Another objective of this test is to verify CMS can store the uplink and load images files and send them to DMS to be saved as a load catalog entry. The validation process will be provided through the RTS Load Builder in Release B.

Success Criteria:

The success of this test requires the demonstration that FOS provides the user the capability to generate RTS load contents using a CMS test driver. Upon load generation the Meta Data server places an uplink file, an image file, and a report (stored by CMS) in the appropriate CMS loads and reports directories. Demonstrate that CMS is able to update the load catalog entry and send it to DMS. The users capability to ingest a RTS load through the use of the FUI Load Manager Tool.

Procedure:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

3. Script is complete when the user gets the following message in the terminal window

   ‘Successful installation of signal handler’

4. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

5. Bring up the events display; enter command control window

   > **TOOL Event_Display**

6. Create RTS load contents (a text file)

   open a terminal window

   %: **cd /home/fostest1/CMSdata**

   %: **viAM1_RTS_002_<loadname**> naming convention: <Spacecraftid>_<type>_ <buffernumber>_<user defined loadname>)

7. Input up to 16 command mnemonics. Enter each command on a separate line.

   a. Save contents and exit vi editor

      %: **<Esc>:wq**

8. Generate load contents

   open a terminal window

   %: **setenv FUILOADDIR /fos/test/am1/loadcontents**

   %: **setenv SCRIPT UserStation**

   %: **source /fos/test/am1/setup FosEnvVars**

9. Initiate test driver

   %: **cd /fos/test/am1/bin/sun_sparc-solaris2-5**

   %: **CreateRTS <dir> <filename> <buffer number>**

10. Verify the following messages indicating

    a. load generation has started via event message

    b. building buffer location and command mnemonic via test driver and message indicating load generation was successfully completed.

11. Verify an uplink load and an image file were created

%: **cd /fos/test/am1/loads/rts** (Note: If the files are not present in this directory check /fos/test/am1/loadcatalog/working)

12. Verify a report was generated

    %: **cd /fos/dev/am1/reports**

13. Print the RTS load report and verify the following:

    %: **lp -olandscape -P <printer name> <filename>**

    a. Load name

    b. Number of commands

    c. Binary conversion of the commands

    d. load initiate command

14. Verify the load catalog entry and show that it was sent to DMS

15. Access sybase

    %: **isql -Ufos_dba**

    %: **password *****

    1> **use am1_fos_ops**

    2> **go**

    1> **select * from fos_load_cat <load name>**

    2> **go**

16. Verify the entry for the load generated (i.e., load name, load size, etc.)

    1> **exit**

17. Delete a RTS load

    open a terminal window

    %: **cd /home/fostest1/input/rtsloads**

18. Initiate test driver

    %: **DeleteRTS <filename>**

19. Verify event message indicating the load and the load catalog entry was deleted

20. List the files in the directory to verify the file was deleted

    %: **ls**

21. Verify the load catalog entry was deleted

22. Access sybase

%: **isql -Ufos_dba**

%: **password *****

1> **use am1_fos_ops**

2> **go**

1> **select * from fos_load_cat <load name>**

2> **go**

Verify there is no entry for the load generated (i.e., load name)

23. Close terminal window

Test No.: SCH 2200A

Test Title: Validation and Generation of Table Load Contents

Test Configuration: See Appendix G

Test Support: EOC startup scripts, Document MIL STD 1750A

Test Description:

This test is designed to verify an authorized user's generation of a Table Load content file using the load builder tools available through FUI. In addition, the authorized user is provided a pre-defined table template with default parameter values that can be modified accordingly. This test demonstrates that the user is provided with the tools necessary to invoke the load builder to input, validate, and generate a table load. Once generation is complete this test will verify that CMS has stored the uplink load file, load image file, a load report, load contents file, and a load catalog entry in the DMS database. The FUI Load manger tool will be used in Release B to ingest a table load from an IST and SCF.

Success Criteria:

A user is able to select a Table Template using the FUI provided, and modify the contents to create a Table load. Demonstrate that FOS provides the user with the capability to ingest a table load content file (Release B). Once the Table Load contents are validated against the Table buffer characteristics defined in the Project Data Base an uplink load, image load, and a load report, load contents file, and load catalog entry associated with that table load are generated. Confirm the user is properly notified when the invalid load contents are detected during the validation process. Binary conversion of table load contents must conform to Mil STD 1750A.

Procedure:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

3. Script is complete when the user gets the following message in the terminal window

   'Successful installation of signal handler'

4. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

5. Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

6. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL> **TOOL Event_Display**

7. Initiate the Table Load Builder Tool.

   a. Click the Tools button on the control window and select Table Load Builder from the dialog box.

   b. Verify the Table Load Builder window is displayed.

8. Select a Table Template.

   a. Under "File" option select "New".

   b. Verify the Table Template Selection window appears.

   c. Select the Spacecraft id (note: system will default to AM1).

   d. Select subsystem.

   e. Click on the desired Table Template.

   f. Verify selected Table appears in the "Selected Table Template " text box.

   g. Click the "OK" button.

   h. Verify the Table Template Selector window closes.

   i. Confirm the Table Load builder displays the corresponding table information: spacecraft ID, subsystem, table type, table time, and the default data field parameter values.

9. Define table load contents.

   a. Modify the default parameters with valid values by editing the data fields of the pre-defined table template.

10. Enter the uplink start time.

    > **YYYY/DDD :HH:MM:SS.mmm**

11. Enter the uplink stop time.

    > **YYYY/DDD:HH:MM:SS.mmm**

12. Generate a table load.

    a. Select "Generate" from File menu to execute load generation.

    b. Verify message(s) in the status line window indicating load validation complete and table load generation for *<tablename>* was successfully completed. (note: software is designed to validate prior to generation).

    c. Verify event messages load generation started and completed successfully.

13. Verify the uplink load (.upl) and an image load (.img) and contents (.cnt) file was created.

    open a terminal window and enter the CMS directory

    %: **cd /fos/test/am1/loads**

14. Verify a load report was generated.

    %: **cd /fos/test/am1/reports**

15. View the report associated with the generated table load, verify the following items are included: (where applicable):

a. Load name	Starting and ending memory location
b. Load type	Contents of the load in hex, and
c. Valid uplink period	where applicable in decimal
d. Load size in bytes	

16. Print the load report.

    lp <filename>

17. Verify the load contents using the DumpImageUplink tool.

    %: **cd /fos/test/am1/bin/sun-sparc_5-4**

    a. setenv SCRIPT UserStation

    b. source FosEnvVars

    c. DumpUplinkImage /fos/test/am1/loads/ESA_OFFSET_TABLE.up1

        <directory path where .upl file resides>/<loadname>

18. Perform post test analysis (using load report) to verify the load contents file contains the binary conversions for all 3 types of legal values i.e., 16 bit integer, 32 bit integer, 32. And 48 bit floating point (note: reference conversion table in Mil STD 1750A).

19. Verify load catalog entry.

    a. Access sybase

%: **isql -Ufos_dba**

%: **password *****

1> **use am1_fos_ops**

2> **go**

1> **select * from fos_load_cat <load name>**

2> **go**

20. Confirm the entry resides in the load catalog table (i.e., load name, load size, etc.).

21. Exit Sybase

    1> **exit**

22. Select a Table Template.

23. Under “File” option select “New”.
    a. Verify the Table Template Selector window appears.
    b. Select the Spacecraft id (note: system will default to AM1).
    c. Select subsystem.

24. Click on the desired Table Template.
    a. Verify selected Table appears in the “Selected Table Template” box.
    b. Click the “OK” button.
    c. Verify the Table Template Selector window closes.

25. Confirm the Table Load builder displays the corresponding table information: spacecraft id, subsystem, table type, and the default data field parameter values.

26. Define table load contents.
    a. Enter invalid parameter values in the data field of the pre-defined table template.

27. Select “Validate” under the “File” option.
    a. Verify a message in the status line window indicating which data fields are invalid.
    b. Browse the table load, any parameter field that is highlighted contains invalid data.

28. Modify the invalid parameters.
    a. Select “Validate” under the “File” option.
    b. Verify message in the status line window indicating the load validation is complete.

29. Exit the Table Load Builder.

30. Select “Quit” from the File menu.
31. Verify Table Load Builder disappears.
32. Invoke the Load Manager tool to ingest a table load. (**Release B capability**)
33. Click on the “TOOLS’ button in the control window.
34. Select “Load Manager”.
35. Verify the Load Manager window is displayed.
36. Click the ‘LOAD INGEST’ button.
37. Verify the Load Ingest window is displayed.
38. Enter the directory path that contains the file in the filter text box.
39. Click on the desired table load in the ‘Files’ text field.
40. Verify the directory path and file name appear in the ‘Selection’ text field.
41. Click the ‘OK’ button.
42. Verify the Load Ingest window closes.
43. Verify the load selected appears in the “Local list’ the field.
44. Click the ‘Close’ button.
45. Verify Load Manager window closes.
46. Log off the EOC user station.

Test No.: RCM 2000A

Test Title: Logical String Configuration & Control

Test Configuration: See Appendix G

Test Support: Real-Time Server, Data Server, and a UserStation. CFGOPS1, CFGTEST1, and CFGTRAIN1 display pages.

Test Description:

This test is designed to verify the ability to configure the FOS resources in support of default, real-time and simulation string resources.

The test begins with the startup of RealTimeServer and User station default processes. Configuration status pages are displayed, verifying the default configuration. Following Several iterations of creating specific logical strings, telemetry connection is requested for viewing single and multiple channel telemetry. Finally, error condition handling is verified, including attempts to create existing strings, connect to non-existent strings, and request invalid string resources.

Success Criteria:

This test is considered successful when initialization of real-time processes invoke the real-time server default logical string resources; logical string configuration activity invoked via STRING ECL directives are accurately portrayed by configuration status displays; Any existing logical string may be connected via STRING ECL directive entry by one or more users; all attempts to connect to non-existing strings are denied. All incorrectly specified ECL STRING directives are disallowed.

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following message in the terminal window:

‘Successful installation of signal handler’

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   Note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL > **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: ********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following event message:

   ‘String 100 was created.’

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG= MIRROR**

   Note: Wait to receive the following event message:

   ‘Successfully connected to string 100’.

7. Verify on the workstations that the mini-Control Window has been invoked and is displayed at the workstation.

8. Connect to the logical string ECL: **STRING CONNECT STRING=100 TLMTYPE= HOUSEKEEPING CONFIG=MIRROR**

9. Display the CFGOPS alphanumeric display page

   (UserStation) ECL: **PAGE CFGOPS1**

10. Verify the following information is shown on the CFGOPS1 alphanumeric display page:

    a. SYS_SC_ID (spacecraft ID)= **AM-1**

b. SYS_DATA_SRC (data source) = **REALTIME**

c. SYS_DB_ID (ODB version) = **1.0**

d. SYS_MODE (Operational mode) = **OPERATIONAL**

e. SYS_STATE (Mode state) = **ACTIVE**

f. SYS_RTS_ID (real-time server) = **1**

g. SYS_STRING_ ID = **100**

11. Verify a unique event message is displayed in the Events Display window upon initiation of the connection.:

    a. Housekeeping process successfully configured

    b. ParameterServer process successfully configured

    c. Successfully connected to string 100.

12. Create an AM-1 operational string in support of test and display the CFGTEST1 display.

    (UserStation) ECL: **STRING CREATE REALTIME SPACECRAFT ID=AM1 DATABASEID=1_0 MODE=TEST SERVER=1**

13. Connect to the operational "test" string.

    (UserStation) **ECL: STRING CONNECT STRING=101 TLMTYPE= HOUSEKEEPING CONFIG=MIRROR**

    (UserStation) **ECL: PAGE CFGTEST1**

    a. Verify the following information is shown on the CFGTEST1 alphanumeric display page.

       (1) SYS_SC_ID (spacecraft ID)= **AM-1**

       (2) SYS_DATA_SRC (data source) = **REALTIME**

       (3) SYS_DB_ID (ODB version) = **1.0**

       (4) SYS_MODE (Operational mode) = **TEST**

       (5) SYS_STATE (Mode state) = **ACTIVE**

       (6) SYS_RTS_ID (real-time server) = **1**

       (7) SYS_STRING_ ID = **101**

14. Verify a unique event message is displayed in the Events Display window upon connection to string "101".

    a. Housekeeping process successfully configured

b. ParameterServer process successfully configured

c. Successfully connected to string 101.

15. Create an AM-1 operational string in support of training and display the CFGTRAIN1 display pages at the UserStation.

    (UserStation) ECL: **STRING CREATE REALTIME SPACECRAFT ID=AM1 DATABASEID=1_0 MODE=TRAINING SERVER=1**

16. Connect to "training" string.

    (UserStation) **ECL: STRING CONNECT STRING=102 TLMTYPE= HOUSEKEEPING CONFIG=MIRROR**

    (UserStation) ECL: **PAGE CFGTRAIN1**

    a. Verify the following information is shown on the CFGTRAIN alphanumeric display page:

        (1) SYS_SC_ID (spacecraft ID)= **AM-1**

        (2) SYS_DATA_SRC (data source) = **REALTIME**

        (3) SYS_DB_ID (ODB version) = **1.0**

        (4) SYS_MODE (Operational mode) = **TRAINING**

        (5) SYS_STATE (Mode state) = **ACTIVE**

        (6) SYS_RTS_ID (real-time server) = **1**

        (7) SYS_STRING_ ID = **102**

17. Verify a unique event message is displayed in the Events Display window upon connection to string "102".

    a. Housekeeping process successfully configured

    b. ParameterServer process successfully configured

    c. Successfully connected to string 100.

18. At the UserStation connect to the real-time logical string in support of operations and display the CFGOPS display.

    (UserStation) **ECL: STRING CONNECT STRING=100 TLMTYPE= HOUSEKEEPING CONFIG=MIRROR**

    (UserStation) ECL: **PAGE CFGOPS1**

    a. Verify the following information is shown on the CFGOPS alphanumeric display page at the UserStation.

        (1) SYS_SC_ID (spacecraft ID)= **AM-1**.

(2) SYS_DATA_SRC (data source) = **REALTIME**

(3) SYS_DB_ID (ODB version) = **1.0**

(4) SYS_MODE (Operational mode) = **OPERATIONAL**

(5) SYS_STATE (Mode state) = **ACTIVE**

(6) SYS_RTS_ID (real-time server) = **1**

(7) SYS_STRING_ ID = **100**

19. Verify a unique event message is displayed in the Events Display window upon initiation of the connection.

    a. Housekeeping process successfully configured

    b. ParameterServer process successfully configured

    c. Successfully connected to string 100.

20. Initiate 16 kbps housekeeping telemetry data transmission on the I channel.

    a. At the Unix command enter the following:

        %: **cd /fos/test/am1/scripts/setup**

        %: **source A2TlmEnvVars**

        %: **cd ../..**

        %: **cd bin**

        %: **cd [machine type]**

        %: **A2TLM**

        Enter tlm type: **am1-hk**

            %: IP address = **224.2.2.45**

            %: Port number = **7711**

            %: Number of packets to send: **-1** ;sends infinite number of packets

            %: Generate sequence errors: **0**

            %: Packet delay in seconds: **2000**

21. At the UserStation display the TLMDecom display page.

    (UserStation) ECL**: PAGE TLMDecom**

20. By viewing the displays at the UserStation, verify that several telemetry values are updated at the user station (some values will resume as static as all mnemonics on the TLMDecom page are not housekeeping telemetry values).

21. Snap the telemetry displays.

    (UserStation) %: **SNAP**

22. Attempt to connect to a non-existent logical string.

    (UserStation) ECL: **STRING CONNECT STRING=105 TLMTYPE=STANDBY CONFIG=MIRROR**

23. Verify that an event message appears stating “Unable to locate string 105 .

24. Attempt to create an illegal string.

    (UserStation) ECL:**STRING CREATE OFFLINE SPACECRAFTID=AM1 DATABASEID=1_0 MODE=TEST SERVER=1**

25. Verify that an event message appears stating “Invalid parameter offline”.

26. Attempt to create a string that already exists:

    (UserStation) ECL: **STRING CREATE REALTIME SPACECRAFT ID=AM1 DATABASEID=1_0 MODE=TRAINING SERVER=1**

27. Verify that an event message appears stating “user trying to create a Real-time string that already exists”.

28. Bring down all processes on the UserStation by using the MyKill directive in the /fos/test/am1/scripts/setup directory.

    TEST END.

<u>Port Addresses:</u>

7711 = HK (I)

7712 = HK (Q)

7721 = HS (I)

7722 = HS (Q)

7731 = STBY (I)

7732 = STBY (Q)

Test No.: RCM 2010A

Test Title: NCC GCMR Processing

Test Configuration: See Appendix G

Test Dependencies: NCC Emulator, Real-Time Server, Data Server, and a UserStation.

NCC_COM1 display page.

Test Description:

This test verifies the ability to send various Ground Configuration Message Requests (GCMRs) to an NCC dummy emulator, and process GCM Status and GCM Disposition messages received as a result of the NCC dummy emulator's response to ground configuration requests. Examples of GCMRs transmitted include User Reacquisition Requests, Forward Link Sweep Requests, Forward Link Reconfiguration Requests, Expand User Frequency Uncertainty Requests and Doppler Compensation Inhibit/Enable Requests).

Success Criteria:

This test is considered successful when GCMR disposition and status information generated by the NCC emulator is mirrored in event messages; values for incoming status/disposition messages match the number received by the FOS; event messages describing accept/reject information in the GCM status message mirror the accept/reject information received by the NCC emulator.

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: ********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following message in the terminal window:

   'Successful installation of signal handler'

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   Note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL> **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: ********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following event message:

   ‘String 100 was created.’

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG= MIRROR**

   Note: Wait to receive the following event message:

   ‘Successfully connected to string 100’.

   (userstation) **ECL: STRING CONNECT STRING=100 TLMTYPE= STANDBY CONFIG=MIRROR**

   (userstation) ECL: **TAKE GROUNDCONTROL STRING=100**

   (userstation) ECL: **TAKE COMMAND STRING=100**

7. Send a GCMR to the NCC emulator requesting a link reacquisition request (the GCMR is scripted for White Sands to accept the request).

   (userstation) ECL: **RCCONFIG STRING=100 TDRS=E00**

   (userstation) ECL:**GCMR REACQUISITION LINK=MA_FWD SUPPORT = FORWARD**

a. Via viewing the **NCC_COM1** page, verify values for GCM disposition and GCM status messages received increase by a value of 1.

8. Via viewing the event page, verify the following:

   a. "MOC request accepted" event message is displayed.

   b. "GCM Disposition Message Received" and "GCM Status Message Received" event messages are displayed.

9. Send a GCMR to the NCC emulator requesting EIRP reconfiguration (the GCMR is scripted for White Sands to reject the request based on specified service not found).

   (userstation) ECL: **RCCONFIG STRING=100 TDRS=E03**

   (userstation) ECL: **GCMR EIRPRECONFIG LINK=SSA1 POWER=NORMAL**

   a. Via viewing the NCC_COMM page, verify values for GCM disposition and GCM status messages received increase by a value of 1.

   b. Via viewing the event page, verify the following:

      (1) "Request Rejected - Specified Service Not Found" event message is displayed.

      (2) "GCM Disposition Message Received" and "GCM Status Message Received" event messages are displayed.

10. Send a GCMR to the NCC requesting a link expansion (the GCMR is scripted to cause a rejection based on full request queues at White Sands).

    (userstation ECL: **RCCONFIG STRING=100 TDRS=E06**

    (userstation) ECL: **GCMR EXPAND LINK= SSA1**

    a. Via viewing the NCC_COMM page, verify values for GCM disposition and GCM status messages received increase by a value of 1.

    b. Via viewing the event page, verify the following:

       (1) "Request Rejected - Request queues full" event message is displayed.

       (2) "GCM Disposition Message Received" and "GCM Status Message Received" event messages are displayed.

11. Send a GCMR to the NCC requesting a TDRSS sweep (the GCMR is scripted to cause a rejection White Sands system being down).

    (userstation) ECL: **RCCONFIG STRING=100 TDRS=E30**

    (userstation) ECL: **GCMR EXPAND LINK= SSA1**

    a. Via viewing the NCC_COMM page, verify values for GCM disposition and GCM status messages received increase by a value of 1.

b. Via viewing the event page, verify the following:

(1) “Request Rejected - White Sands System is Down” event message is displayed.

(2) “GCM Disposition Message Received” and “GCM Status Message Received” event messages are displayed.

12. Send a GCMR to the NCC requesting a reconfiguration of the MA forward service (the GCMR is scripted to cause a rejection at White Sands based on an unscheduled service).

(userstation) ECL: **RCCONFIG STRING=100 TDRS=E23**

(userstation) ECL: **GCMR RECONFIG MA FORWARD ANTENNA=TYPE1 RATE=32 FREQ=45 DOPCOMP=YES**

a. Via viewing the NCC_COMM page, verify values for GCM disposition and GCM status messages received increase by a value of 1.

b. Via viewing the event page, verify the following:

(1) “Request Rejected - Unscheduled Service Request” event message is displayed.

(2) “GCM Disposition Message Received” and “GCM Status Message Received” event messages are displayed.

13. Send a GCMR to the NCC requesting a reconfiguration of the MA returnservice (the GCMR is scripted to cause a rejection at White Sands due to unallowable data rate).

(userstation) ECL: **RCCONFIG STRING=100 TDRS=E24**

(userstation) ECL: **GCMR RECONFIG MA RETURN LINK= MA01 ANTENNA= TYPE2 IRATE= 23 QRATE= 34 FREQ= 78 MAXEIRP= 55 MINEIRP= 77 RATIO= 79 IFORMAT= NRZ-L QFORMAT= NRZ-M IJITTER= 0.01% QJITTER=0.1% IG2INVERSION= INVERT QG2INVERSION= INVERT MODE= COHO NULLREQ= YES ISTREAM= 44 QSTREAM= 23**

a. Via viewing the NCC_COMM page, verify values for GCM disposition and GCM status messages received increase by a value of 1.

b. Via viewing the event page, verify the following:

(1) “Request Rejected - Maximum Data Rate Exceeded for Requested Service” event message is displayed.

(1) “GCM Disposition Message Received” and “GCM Status Message Received” event messages are displayed.

14. Send a GCMR to the NCC requesting a reconfiguration of the SSA Forward service (the GCMR is scripted to cause a rejection by White Sands due to requested service not currently in operation).

(userstation) **ECL: RCCONFIG STRING=100 TDRS=E12**

(userstation) ECL: **GCMR RECONFIG SSA FORWARD LINK= SSA1 ANTENNA= TYPE1 RATE= 33 FREQ= 56 POLAR= LCP DOPCOMP= YES PNMOD= NO**

a. Via viewing the NCC_COMM page, verify values for GCM disposition and GCM status messages received increase by a value of 1.

b. Via viewing the event page, verify the following:

(1) "Request Rejected - Required Corresponding Forward Service is not in Operation" event message is displayed.

(2) "GCM Disposition Message Received" and "GCM Status Message Received" event messages are displayed.

15. Send a GCMR to the NCC requesting a reconfiguration of the SSA return service (the GCMR is scripted to cause a rejection by White Sands based on TDRS/ground antenna mismatch).

(userstation) ECL: **RCCONFIG STRING=100 TDRS=E13**

(userstation) ECL: **GCMR RECONFIG SSA RETURN LINK= SSA2 ANTENNA= TYPE2 IRATE= 23 QRATE= 34 FREQ= 78 POLAR= RCP MAXEIRP=55 MINEIRP=77 RATIO=79 IFORMAT=NRZ-L QFORMAT=NRZ-M IJITTER=0.01% QJITTER=0.1% DATAGROUP= DG1 DG1MODE=MODE1 DG2TYPE= NON_COHO_NOI_NOQ IG2INVERSION=INVERT QG2INVERSION=INVERT ISTREAM= 44 QSTREAM= 41**

a. Via viewing the NCC_COMM page, verify values for GCM disposition and GCM status messages received increase by a value of 1.

b. Via viewing the event page, verify the following:

(1) "Request Rejected - Connectivity table error detected (no TDRS/ground antenna match)" event message is displayed.

(2) "GCM Disposition Message Received" and "GCM Status Message Received" event messages are displayed.

16. Send a GCMR to the NCC requesting a reconfiguration of the KSA return service (the GCMR is scripted to cause a rejection by White Sands based on null vectors not being assigned).

(userstation) ECL: **RCCONFIG STRING=100 TDRS=E10**

(userstation) ECL: **GCMR RECONFIG KSA RETURN LINK=KSA1 IRATE= 23 QRATE=34 FREQ=78 POLAR=RCP MAXEIRP=55 MINEIRP=77 AUTOTRACK=DISABLE RATIO=2 IFORMAT=NRZ-L QFORMAT=NRZ-S**

IJITTER=0.5% QJITTER=0.01% DATAGROUP=DG1 DG1MODE=MODE 1 DG2TYPE= COHO IG2INVERSION = INVERT QG2INVERSION = INVERT ISTREAM = 44 QSTREAM = 41

a. Via viewing the NCC_COMM page, verify values for GCM disposition and GCM status messages received increase by a value of 1.

b. Via viewing the event page, verify the following:

(1) "Request Rejected - White Sands System is Down" event message is displayed.

(2) "GCM Disposition Message Received" and "GCM Status Message Received" event messages are displayed.

17. Send a GCMR to the NCC requesting a Doppler compensation inhibit request (the GCMR is scripted to cause a rejection by White Sands based on an inappropriate inhibit code).

(userstation) ECL: **RCCONFIG STRING=100 TDRS=E29**

(userstation) ECL: **GCMR DOPPLERCOMP LINK=MA INHIBIT=OTHER**

a. Via viewing the NCC_COMM page, verify values for GCM disposition and GCM status messages received increase by a value of 1.

b. Via viewing the event page, verify the following:

(1) "Request Rejected - Doppler Inhibit Code Inappropriate for Configuration" event message is displayed.

(2) "GCM Disposition Message Received" and "GCM Status Message Received" event messages are displayed.

18. Send a GCMR to the NCC emulator requesting EIRP reconfiguration (the GCMR is scripted for White Sands to reject the request based on an invalid parameter in the GCMR request).

(userstation) ECL: **RCCONFIG STRING=100 TDRS=E21**

(userstation) ECL: **GCMR EIRPRECONFIG LINK=SSA1 POWER=NORMAL**

a. Via viewing the NCC_COMM page, verify values for GCM disposition and GCM status messages received increase by a value of 1.

b. Via viewing the event page, verify the following:

(1) "Request Rejected - Parameter in GCMR invalid - byte 2 start address" event message is displayed.

(2) "GCM Disposition Message Received" and "GCM Status Message Received" event messages are displayed.

19. Send a GCMR to the NCC emulator requesting EIRP reconfiguration (the GCMR is scripted for White Sands to send the disposition and status messages in reverse order).

    (userstation) ECL: **RCCONFIG STRING=100 TDRS=E22**

    (userstation) ECL: **GCMR EIRPRECONFIG LINK=SSA1 POWER= NORMAL**

    a. Via viewing the NCC_COMM page, verify values for GCM disposition and GCM status messages received increase by a value of 1.

    b. Via viewing the event page, verify the following:

        (1) “Request Rejected - Request Accepted” event message is displayed.

        (2) “GCM Disposition Message Received and status unknown” and “GCM Status Message Received” event messages are displayed.

20. Enter into the TCPDUMP directory in order to print the contents of the NCC disposition and status messages received from the NCC emulator by entering the following UNIX directive:

    % **cd /fos/test/am1/scripts/setup**

21. Print the contents of the NCC TCPDUMP contents containing NCC disposition and status messages.

    (userstation) ECL: **lpr <tbs file names>**

    a. Via off-line analysis, verify each GCM disposition message contains request information pertaining to each individual GCMR sent to the NCC and matches content of Table 8-12 of the ICD Between the NCC and MOC (DID 530-ICD-NCCDS/MOC).

    b. Via off-line analysis, verify each GCM status message contains status information pertaining to each individual GCMR sent to the NCC and matches content of Table 8-13 of the ICD Between the NCC and MOC (DID 530-ICD-NCCDS/MOC).

TEST END.

Test No.: RCM 2020A

Test Title: Offline Archive to SDPS

Test Configuration: See Appendix G

Test Dependencies: SDPS connectivity; Real-Time Server, Data Server, UserStation Ftp capability.

Test Description:

This test is designed to verify the basic capabilities of the EOC-SDPS interface, namely to transmit archive files to the SDPS.

NOTE: To validate SDPS-EOC basic capabilities, it is necessary to execute this test with the participation of the SDPS. Prior to the execution of this test, the SDPS should be notified and time scheduled for test execution.

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: ********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following message in the terminal window:

   ‘Successful installation of signal handler’

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   Note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL> **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: ********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following event message:

   'String 100 was created.'

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG=MIRROR**

   Note: Wait to receive the following event message:

   'Successfully connected to string 100'.

7. From the Unix prompt at the UserStation type:

   a. **/usr/cygnus/cns5/bin/kinit**

   b. type: **ftp iclg2sun**

   c. Press [Enter] at the FTP user prompt. * Note * -- A password is not required.

8. Transmit a file (***am1-data***) to the SDPS via a UNIX ftp directive (put); verify the SDPS received the file. Ex. ***Ftp> put am1-data***

9. Verify and Compare the schedule file output content to a printout (softcopy) of the archive file to verify no data integrity loss during the transfer process.

10. Bring down all processes on the UserStation by invoking the MyKill directive in the **/fos/test/am1/scripts/setup** directory.

TEST END

Test No.: COMMAND 2000A

Test Title: Command Authorization

Test Configuration: See Appendix G

Test Support: EOC startup scripts. Files "hw.db" and user.db contain a list of valid EOC user stations and valid userid's, respectively, that are authorized for CAC privilege.

Test Description:

This test is designed to verify the FOS capability to support a user request for command authorization. This test demonstrates that a user is able to input the necessary ECL directives to request Command Activity Controller (CAC) privileges at the user's workstation, and that the FOS rejects any request for command authority made by a user that does not have appropriate privileges.

The secondary objective of this test is to verify the FOS capability to support FUI processing of command directives that are entered manually in real time at the CAC user workstation and performs a syntax check, and the Command Subsytem performs a validation on each command entered for transmission.

Success Criteria:

Verify that all unauthorized requests for command authorization are rejected and authorized requests are granted. Review event history to confirm all reassignments of CAC privileges. Verify that there is a single point of command throughout the duration of the test. Verify that the FUI subsystem recognizes command directives entered by a user with CAC privilege.

Procedure:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

3. Script is complete when the user gets the following message in the terminal window

‘Successful installation of signal handler’

4. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

5. Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

6. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL> **TOOL Event_Display**

7. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

8. Script is complete when the user gets the following event message:

   ‘String 100 was created.’

9. Connect to a real-time operational string, by entering the following in the ECL directive line of the Control window:

   user1 ECL> **STRING CONNECT STRING=100 TLMTYPE=STANDBY CONFIG=MIRROR**

   a. Wait to receive the following event message:

      ‘Successfully connected to string 100’.

10. Take CAC privilege (user1). Using the ECL command line in the Control Window enter

    user1 ECL> **TAKE COMMAND STRING = 100**

    a. Verify user1 request for CAC privilege have been assigned

    b. Verify an event message via event display indicating privileges have been granted

11. Activate Command Control window using the following tool directive from the control window

    > **TOOL Command_Control**

    a. A dialog box will appear allowing user to enter String id and Spacecraft id

b. click ‘ok’

12. Verify Command Control window is displayed will all five user interface (pull down) Menus; File, Edit, Config, Utility, and Help

13. Enter a command directive from the ECL command line in the Control Window

    (user1)>**/AST_TURN_OFF_C_SDP**

    a. Click the “Resume” button

    b. Click the “Send “button

14. Verify the command was transmitted via event messages.

15. Initialize EOC user station (user 2)

16. Logon to an EOC user station

    Username: **********

    Password: **********

17. At the UNIX prompt, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

    %: **cd /fos/test/am1/scripts/setup**

    %: **source A2_UserStationStartup** *(wait for script completion)*

18. User2 takes CAC privileges from user1.

19. Using user directives user2 initiates a request to take CAC privileges from user1 by entering the following command from the ECL command line

20. (user2 ECL)>**TAKE COMMAND STRING=100**

21. Verify event message indicating CAC privileges have been reassigned to the current CAC user’s userid and workstation

22. To ensure single point of command verify user1’s Command Input line in the Command Control window is grayed out.

23. Activate Command Control window using the following tool directive from the control window

    a. (user2 ECL)> **TOOL Command_Control**

    b. a dialog box will appear allowing user to enter String id and Spacecraft id

    c. click ‘ok’

24. Verify Command Control window is displayed will all five user interface (pull down) menus; File, Edit, Config, Utility, and Help

25. User2 enters a command directive in the Control Window to verify CAC privileges have actually been granted

    (user2 ECL)>**/AST_TURN_ON_C_TDP**

26. Verify a real time command can be manually entered from the current CAC user station. Enter the following commands individually from the command input line of the command control window:

    a. (user2 ECL)>**/AST_TURN_ON_C_VDP1**

    b. click “Send” button

    c. verify via event display that command was successfully transmitted

    d. (user2 ECL)>**/AST_TURN_OFF_C_VDP1**

    e. click “Send” button

    f. verify via event display that command was successfully transmitted

    g. (user2 ECL)>**/AST_TURN_OFF_C_VDP2**

    h. click “Send” button

    i. verify via event display that command was successfully transmitted

    j. (user2 ECL)>**/AST_TURN_ON_C_VDP2**

    k. click “Send” button

    l. verify via event display that command was successfully transmitted

27. Enter a an invalid real time command from the current CAC user station

    a. (user2 ECL)>**/ABC_XYZ**

    b. click “Send” button

    c. verify command was rejected due to an invalid mnemonic name

28. Enter a valid real time command from the current CAC user station without the ‘/’ parameter.

    a. ECL**>/AST_TURN_ON_C_VDP1**

    b. verify dialog box appears indicating syntax error: invalid parameter

Test No.: CMD 2005A

Test Title: Ground Script Control

Test Configuration: See Appendix G

Test Support: Generated DAS, FOS User Interface, DMS, RMS, CMS, CMD

Test Description:

This test demonstrates that a user with CAC privileges is provided the tools necessary to initiate the execution of a ground script and manipulate ground script execution. Manipulation of this ground script includes; enable/disable of individual directives, transferring the execution to a directive, suspend, resume and termination of the currently executing ground script. In addition, testing verify the displays provided to the users for validating proper execution of ground script directives.

Success Criteria:

Successful demonstration of CAC capabilities to select a valid ground script, initiate execution of the ground script, manipulate ground script control and terminate the ground script via user directives. The ground script should process command directives for the spacecraft.

Procedure:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

3. Script is complete when the user gets the following message in the terminal window

   'Successful installation of signal handler'

4. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

5. Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.
6. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL> **TOOL Event_Display**

7. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

8. Script is complete when the user gets the following event message:

   ‘String 100 was created.’

9. Connect to a real-time operational string, by entering the following in the ECL directive line of the Control window:

   user1 ECL> **STRING CONNECT STRING=100 TLMTYPE=STANDBY CONFIG=MIRROR**

   a. Wait to receive the following event message:

      ‘Successfully connected to string 100’.

10. Assign CAC privilege.

    a. Enter the following directive from the control window.

       ECL> **TAKE COMMAND STRING=100**

    b. Verify message via event display indicating command privileges have been assigned to the proper userid and workstation id.

11. Select the DAS that will generate the ground script.
12. View the integrated report file associated with the selected DAS to identify the times of the ground script to be executed.

    open a terminal window

    cd /fos/test/am1/groundsched/report

    ls

13. To view the ASCII file Integrated Report enter

    %: **more “filename”**

14. Activate Command Control window using the following tool directive from the control window.
15. ECL> **TOOL Command_Tool**
16. A dialog box will appear
    a. enter String id (ex. 100)
    b. enter Spacecraft ID (ex. AM1)
    c. Click “ok”
17. Verify Command Control window is displayed will all five user interface (pull down) menus; File, Edit, Config, Utility, and Help.
18. Verify there are five columns: DATE/TIME, BUFFER, TYPE, DIRECTIVE, STATUS (Note: User may need to resize window if all columns are not displayed)
19. Select a ground script for execution. Bring up the time selector box:
    a. Using the "File" menu from Command Control window select “Open”.
    b. Enter the DAS start time of the ground script selected for execution.

       > **YYYY/DDD HH:MM:SS.mmm**

    c. Enter the DAS stop time of the ground script selected for execution.

       > **YYYY/DDD HH:MM:SS.mmm**

    d. A confirmation box will appear with dates and times specified, prompting user to load ground script.
    e. Click ‘ok’ to load ground script
20. The contents of the ground script will be displayed in the text area of the window.
21. Verify the following items are properly displayed in the Command Control window.
    a. ground script start time
    b. ground script stop time
    c. spacecraft id associated with ground script
    d. ground script status - suspended (default)
    e. ground script processing mode - auto (default)
    f. current bias time
    g. verification flags (Prerequisite State Check (PSC)=ON, Command =ON, and Telemetry (TV)=ON) *Note: CV and TV should be set off in Rel. A*

22. Examine the ground script to ensure the commands/directives displayed represent the time period specified.

23. Click on the “Resume” button to invoke the execution of the ground script.

    a. Verify G/S Status is “Active”.

24. Verify user is capable of viewing the following (using the scroll bar);

    a. executed ground script directives

    b. current ground script directive

    c. future ground script directives

25. Suspend the execution of the current ground script.

    a. Click on the "Suspend" button.

    b. Verify G/S Status is “Suspend”.

26. Disable a directive in the current ground script that has not been executed.

    a. Point and click on the desired directive (not executed).

    b. Click on the "disable" button to disable the directive .

    c. Verify via status column directive status is “disabled”.

    d. Click on the “Resume” button, and verify G/S Status: “Active”.

    e. Verify the directive was skipped.

27. Enable the directive that has been disabled.

    a. Select the disabled directive (note: prior to enable time).

    b. Click on the "enable" button.

    c. Verify the directive was executed.

28. Transfer the execution to a directive in the ground script .

    a. Select a non-executed directive in the ground script.

    b. Click on the "Set Jump" button to jump to the specified directive.

    c. Verify this directive executes after the current directive has been successfully executed.

29. Deselect a set jump target in the executing ground script.

    a. Select a non-executed directive in the ground script.

    b. Click on the "Set Jump" button to jump to the specified directive.

c. Click on the “Clear Jump” button.

30. Ensure user is able to allow critical commands.

31. Manually enter a critical command from the Command Input Line while the ground script is executing.

    ECL> **MOD_TURN_ON_CPA**

    a. Click the “Send” button

    b. Wait for the system to prompt user to enter “Allow or Cancel” message in the status column.

    c. Click the “Allow” button.

    d. Verify the command was executed immediately following the current executing directive.

32. Verify user can cancel a critical command directive.

    a. Manually enter a critical command from the Command Input Line while the ground script is executing.

       ECL> **MOD_TURN_ON_CPA**

    b. Click the “Send” button.

    c. Wait for the system to prompt user to enter “Allow or Cancel” message in the status column.

    d. Click the “Cancel” button.

    e. Verify the command was canceled via event message.

33. Search the executing ground script for a specified time stamp.

    a. Go to the “Utility” pull down menu select “Find” option.

    b. Enter the specified time in the find dialog window.

    c. Verify the entire line containing the specified time is highlighted.

34. Search the executing ground script for a specified text string.

    a. Go to the “Utility” pull down menu select “Find” option.

    b. Enter the specified text string in the find dialog window.

    c. Verify the entire line containing the specified text string is highlighted

35. Search the executing ground script for a specified command.

    a. Go to the “Utility” pull down menu select “Find” option.

b. Enter the specified command in the find dialog window,

c. Verify the entire line containing the command selected is highlighted.

36. Place ground script in step mode.

a. Use the “Config” pull down menu.

b. Select mode step.

c. Verify mode displayed is “step”.

d. Verify user must confirm each command and directive with a send or cancel.

37. Print the ground script

a. Go to “File” option and select “Print”

b. verify the current ground was sent to the printer

38. Terminate the current ground script by clicking on the "kill" button.

39. Verify confirmation dialog box appears prompting user for certainty.

40. Click ‘ok’ to terminate.

41. Verify ground script execution was terminated via G/S status or ground script portion of the Command Control window will go blank.

42. Close the Command Control Window.

a. Go to the “File” menu option select “Quit”.

b. Verify Command Control Window closes.

43. Bring down all user station processes (optional if not last test)

%: **cd /fos/test/am1/scripts/setup**

%: **MyKill**

44. Log off user station

Test No.: COMMAND 2010A

Test Title: Manual Command Processing

Test Configuration: See Appendix G

Test Dependencies: DMS, FOS User Interface, ECL

Test Description:

This test is designed to verify the FOS capability to support FUI processing of command directives that are entered manually in real-time at the CAC user workstation. This test demonstrates that the FUI subsystem is capable of recognizing commands with valid and invalid submnemonics, critical commands, and prerequisite state check commands. To monitor the telemetry mnemonics associated with prerequisite state check commands bring up the display page ‘prereq’. In addition, the transfer frame header information will be verified during post test analysis using the CCSDS document.

Success Criteria:

The authorized user should be to override the command directive when prerequisite state check fails or cancel the command directive. Any manually entered submnemonic command definitions that are invalid should be rejected, based on the definition in the command PDB. The user should be able to verify failed or passed status for all PSC commands by viewing the ‘prereq’ display page. The user should be able to allow or cancel critical commands. The transfer frame header should coincide with the information provided in the CCSDS document.

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: ************

   Password: ************

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: ************

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

3. Script is complete when the user gets the following message in the terminal window

   ‘Successful installation of signal handler’

4. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

5. Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

6. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL> **TOOL Event_Display**

7. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

8. Script is complete when the user gets the following event message:

   'String 100 was created.'

9. Connect to a real-time operational string, by entering the following in the ECL directive line of the Control window:

   user1 ECL> **STRING CONNECT STRING=100 TLMTYPE=HOUSEKEEPING CONFIG=MIRROR**

   a. Wait to receive the following event message:

      'Successfully connected to string 100'

10. Assign CAC privilege

11. Enter the following directive from the control window

    ECL> **TAKE COMMAND STRING=100**

    a. Verify message indicating command privileges have been assigned.

12. Activate Command Control window using the following tool directive from the control window.

13. ECL> **TOOL Command_Tool**

14. Verify Command Control window is displayed will all five user interface (pull down) menus; File, Edit, Config, Utility, and Help.

15. Using the Config pull down menu turn CV and TV off
16. Enter a command mnemonic with a valid submnemonic parameter value.
    a. ECL> **/TCS_SET_PBATPWMA DUTYCYCLE=135, HTRGROUP=6**
    b. Click “Send” button.
    c. Verify the command was accepted.
17. Enter a command mnemonic with an invalid submnemonic parameter value.

    ECL> **/TCS_SET_PBATPWMA DUTYCYCLE=257, HTRGROUP=0**

    a. Click “Send button.
    b. Verify message indicating subfield error.
    c. Verify via event display command was rejected due to an invalid submnemonic parameter value.
18. Enter a command mnemonic with a valid submnemonic parameter value.

    ECL> **/TCS_SET_PBATPWMA HTRGROUP=8, DUTYCYCLE=255**

    a. Click the “Send” button.
    b. Verify command was accepted.
19. Enter a valid command mnemonic with a syntactically incorrect submnemonic parameter.

    ECL> **/TCS_SET_PBATPWMA /HTRGROUP=8**

    a. Verify dialog box indicating syntax error
20. Enter a command mnemonic with a valid submnemonic parameter value.

    ECL> **/TCS_SET_PBATPWMB DUTYCYCLE=108, HTRGROUP=2**

    a. Click the “Send” button.
    b. Verify the command was accepted.
21. Enter a command mnemonic with an invalid submnemonic parameter value.

    ECL> **/TCS_SET_PBATPWMB DUTYCYCLE=300, HTRGROUP=8**

    a. Click the “send” button.
    b. Verify message indicating subfield error
    c. Verify via event display command was rejected due to an invalid submnemonic parameter value.
22. Enter a command mnemonic with a valid submnemonic without assigning a parameter value. (note: system will assign the default value).

ECL> **/TCS_SET_PBATPWMB**

a. Click the “Send” button.

b. Verify command was accepted.

23. Enter a command mnemonic with an invalid submnemonic.

ECL**> /TCS_SET_PBATPPWMB HTRGROUP=2**

a. Verify dialog appears indicating syntax error.

b. Verify via event display command was rejected due to an invalid submnemonic.

24. Enter three (3)critical commands and allow each command.

ECL> **/COM_TURN_OFF_KSA2E1**

a. Click the “Send” button.

b. Wait for system to prompt user for Allow or Cancel.

c. Click the “Allow” button.

ECL> **/COM_TURN_OFF_KSA2E2**

d. Click the “Send” button.

e. Wait for system to prompt user for Allow or Cancel.

f. Click the “Allow” button.

ECL> **/CDH_TURN_OFF_SCC2**

g. Click the “Send” button.

h. Wait for system to prompt user for Allow or Cancel

i. Click the “Allow” button.

25. Enter three (3)critical commands and cancel each command

ECL> **/COM_TURN_ON_SSPA1**

a. Click the “Send” button.

b. Wait for system to prompt user for Allow or Cancel.

c. Click “Cancel” button.

ECL> **/MOP_TURN_ON_SPSU_A**

d. Click the “Send” button.

e. Wait for system to prompt user for Allow or Cancel.

f. Click the “Cancel” button.

ECL> **/EAS_ENABLE_NEA_BUSB**

g. Click “Send” button.

h. Wait for system to prompt user for Allow or Cancel.

i. Click the “Cancel” button.

26. Invoke the EDOS telemetry driver to generate telemetry packets to monitor prerequisite state check commands.

27. In a terminal window, enter the following:

%: **cd /fos/test/am1/scripts/setup**

%: **source A2tlmEnvVars**

%: **cd /fos/test/am1/bin/sun_spac_5-4**

%: **A2tlm**

Enter tlm type: **am1-hk**

At the A2tlm prompt enter the following:

IP address = **0**

Port number =**0**

Number of packets to send: **300**

Generate sequence errors: **0**

Packet delay in milliseconds: **4000**

28. Bring up the prereq display page

a. Click the Tlm Wins… button the Control Window

b. Highlight prereq and click ‘ok’

29. Enter a Prerequisite State Check command with one valid telemetry parameter value.

ECL> **/AST_TURN_OFF_SDP**

a. Click the “Send” button.

b. check ‘AST_BR_C_S_PROCESS’ on the prereq telemetry page. If the value is ‘ON’ the command should pass and command will be transmitted.

c. Verify the command was sent.

d. If value is “OFF” a message in the status column should appear indicating PSC failure; override or cancel

e. click the cancel button

ECL> **/CDH_ENABLE_CT1_OK**

f. Click the “Send” button.

g. check ‘CDH_BR_ACT_IMOKDIST’ on the prereq telemetry page. If the value is ‘DISABLE’ the command should pass and command will be transmitted

h. Verify the command was sent.

i. If value is “ENABLE” a message in the status column should appear indicating PSC failure; override or cancel

j. click the override button

k. verify via event display that command was transmitted

ECL> **/EPS_TURN_OFF_ADEA**

l. Click the “Send” button.

m. check ‘CDH_BR_ACT_IMOKDIST’ on the prereq telemetry page. If the value is ‘ON’ the command should pass and command will be transmitted

n. Verify the command was sent.

o. If value is “OFF” a message in the status column should appear indicating PSC failure; override or cancel

p. click the cancel button

30. Enter a Prerequisite State Check command with four valid telemetry parameters values

ECL> **/AST_TURN_ON_C_SDP**

a. Click the “Send” button.

b. Check the following telemetry mnemonics on the prereq telemetry page. The values below must be displayed for the command to pass PSC check and be transmitted.

(1) AST_BR_C_S_PROCESS = OFF

(2) CDH_BR_ACT_IMOKDIST = DISABLE

(3) CDH_CR_ACT_OSC_SEL = MO_B

(4) EPS_BR_ADE_A_ON = OFF

c. Verify the command was sent.

d. If one of these values do not match a message in the status column should appear indicating PSC failure; override or cancel

e. click the cancel button

f. verify command was transmitted

31. Enter a real time command

    ECL> **/AST_TURN_ON_C_TDP**

    a. Click the “Send” button.

    b. Verify a message indicating the command was sent.

32. Print out the command the transfer frame header packet.

33. Verify that NRZM encoding is being done properly.

    a. Open a terminal window.

        %: **cd /fos/test/am1/reports**

    b. Verify the following files were created.

        (1) cdb.dat

        (2) cdb.nrz

34. Perform an octal dump to view files.

    >% ‘od_x’ cdb.dat

35. End of test

36. Post test analysis:

37. Perform an offline analysis of the frame header packet using the CCSDS document and verify the following:

    a. Transfer frame format (1553-B)

    b. Packet Sequence Number

    c. Transfer frame sequence number increment modulo 256 (wrap from 255 to 0).

    d. CTLU format contains the start sequence "EB90" hex

    e. Fixed packets length of 72 bytes

    f. word location

    g. command was sent to active CTIU

    h. single uplink channel

    i. metering uplink rate of 10 kbps

    j. transfer frame header contains correct bypass flag and control command flag

38. Test is complete.

39. Bring down all user station processes (optional if not last test)

40. % **cd /fos/test/am1/scripts/setup**

41. % **MyKill**

42. log off user station

Test No.: COMMAND 2015A

Test Title: Ground Script Command Processing

Test Configuration: See Appendix G

Test Support: EOC startup scripts. A generated DAS with valid and invalid parameter values for prerequisite state check commands

Test Description:

This test is designed to verify the FOS capability to process prerequisite state checks for commands that are contained as part of a ground script. Once, that ground script is executed the prerequisite state check fails the user can override the command directive or cancel the command directive. This test also, demonstrates that for commands issued as part of a ground script, the FOS is capable of recognizing and executing valid submnemonic command definitions. In addition, commands with submnemonic definitions that are manually entered by the CAC from the Command Control Window (via the Command Input Line) will be validated against definitions that reside in the FOS database.

Success Criteria:

The authorized user should be to override the command directive when prerequisite state check fails or cancel the command directive using the FUI interface options provided by the Command Control window. Any manually entered submnemonic command definitions that are invalid should be rejected, based on the definition in the command PDB.

Procedures:

1. Log onto a EOC workstation, dedicated as a data server, under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. At the UNIX prompt, change directory to /fos/test/am1/scripts/setup. Invoke the Data Server startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

3. Log onto the EOC workstation, dedicated as a user station, under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

4. At the UNIX prompt, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

%: **cd /fos/test/am1/scripts/setup**

%: **source A2_UserStationStartup** *(wait for script completion)*

5. Log onto a EOC workstation, dedicated as a real-time server, under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

6. At the UNIX prompt, change directory to /fos/test/am1/scripts/setup. Invoke the Realtime Server startup scripts.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

7. Connect to a real-time string

   user1 ECL> **STRING CONNECT STRING=100 TLMTYPE=STANDBY CONFIG=MIRROR**

8. Assign CAC privilege.

9. Enter the following directive from the control window.

   ECL> **TAKE COMMAND STRING=100**

   a. Verify message via event display indicating command privileges have been assigned to the proper userid and workstation id.

10. Select the DAS that will generate the ground script.

    a. View the integrated report file associated with the selected DAS to identify the times of the ground script to be executed.

    b. Open a terminal window.

    %: **cd /fos/test/am1/groundsched/report**

11. View the ASCII file Integrated Report by entering:

    %: **more <filename>**

12. Activate Command Control window using the following tool directive from the control window.

    ECL> **TOOL Command_Tool**

    a. Verify a dialog box appears

    b. enter String id (ex. 100)

    c. enter Spacecraft ID (ex. AM1)

d. Click “ok”

13. Verify Command Control window is displayed will all five user interface (pull down) menus; File, Edit, Config, Utility, and Help.

14. Bring up the time selector dialog window to select the times of the a ground script.

    a. Use the "File" option from Command Control window select “Open”.

15. Enter the DAS start time of the ground script selected for execution.

    >**YYYY/DDD HH:MM:SS.mmm**

16. Enter the DAS stop time of the ground script selected for execution.

    >**YYYY/DDD HH:MM:SS.mmm**

17. A confirmation box will appear with dates and times specified, prompting

18. user to load ground script.

    a. Click ‘ok’ to load ground script

    b. Verify the contents of the ground script appear in the window.

19. Verify the following items are properly displayed in the Command Control window

    a. ground script start time

    b. ground script stop time

    c. spacecraft id associated with ground script

    d. ground script status - suspended (default)

    e. ground script processing mode = auto (default)

    f. current bias time

    g. verification flags (Prerequisite State Check (PSC)=ON, Command (CV)=ON, and Telemetry (TV)=ON) *Note: CV and TV should be set off in Rel. A*

20. Examine the ground script to ensure the commands/directives displayed represent the time period specified.

21. Click on the “Resume” button to invoke the execution of the ground script.

22. Verify G/S Status is “Active”.

23. Monitor the ground script to ensure all commands are successfully transmitted.

24. Verify a message in the status column appears indicating a prerequisite state check failure.

25. Click the “Override” button.

26. Click the “Resume” button.
27. Verify G/S Status is “Active”.
28. Verify the command was transmitted.
29. Verify a message in the status column appears indicating a prerequisite state check failure.
30. Click the “Cancel” button.
31. Click the “Resume” button.
32. Verify G/S Status is “Active”.
33. Verify command was canceled.
34. Using the command input line enter a command mnemonic with a valid submnemonic parameter value.
    a. Suspend ground script execution by clicking the “Suspend” button
    b. Verify G/S Status is “Suspended”.

       ECL> **/TCS_SET_PBATPWMA DUTYCYCLE=135**

    c. Click on the “Resume” button to invoke the execution of the ground script.
    d. Verify G/S Status is “Active”.
    e. Click “Send” button.
    f. Verify command was accepted via event display.
35. Using the command input line enter a command mnemonic with a invalid submnemonic parameter value
    a. Suspend ground script execution by clicking the “Suspend” button.
    b. Verify the G/S Status is “Suspended”

       ECL> **/TCS_SET_PBATPWMA DUTYCYCLE=300**

    c. Click on the “Resume” button to invoke the execution of the ground script.
    d. Verify G/S Status is “Active”.
    e. Click the “Send” button.
    f. Verify a message is shown indicating subfield error.
    g. View event display to verify command was rejected due to an invalid parameter value.
36. Once ground execution is complete, close the Command Control window.

a. Using the “File” menu option select “Quit”.

b. Verify the Command Control Window closes.

37. Test is complete.

38. Bring down all user station processes (optional if not last test)

% **cd /fos/test/am1/scripts/setup**

% **MyKill**

39. Log off user station.

Test No.: CMD 2017A

Test Title: Ground Script Manipulation

Test Configuration: See Appendix G

Test Support: EOC startup scripts, A generated DAS

Test Description:

This test demonstrates that a user with CAC privileges is provided the tools necessary to initiate the execution of a ground script and manipulate ground script execution. Manipulation of this ground script includes; merging a procedure, suspend, resume and termination of the currently executing ground script.

Success Criteria

Successfully demonstrated of CAC's capability to select a valid ground script. Initiated execution of the ground script, merged procedures, suspended, resumed the ground script control and terminated the ground script.

Procedures:

1. Log onto a EOC workstation, dedicated as a data server, under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. At the UNIX prompt, change directory to /fos/test/am1/scripts/setup. Invoke the Data Server startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

3. Log onto the EOC workstation, dedicated as a user station, under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

4. At the UNIX prompt, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

5. Log onto a EOC workstation, dedicated as a real-time server, under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

Username: **********

Password: **********

6. At the UNIX prompt, change directory to /fos/test/am1/scripts/setup. Invoke the Realtime Server startup scripts.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

7. Connect to a real-time string

   user1 ECL> **STRING CONNECT STRING=100 TLMTYPE=STANDBY CONFIG=MIRROR**

   a. Verify event message ‘String 100 Connected’

8. Assign CAC privilege.

9. Enter the following directive from the control window

   ECL> **TAKE COMMAND STRING=100**

   a. Verify message indicating command privileges have been assigned to the proper userid and workstation ID.

10. Select the DAS that will generate the ground script.

11. View the integrated report file associated with the selected DAS to identify the times of the ground script to be executed.

12. Open a terminal window and enter the following:

    %: **cd $reportdir**

13. View the ASCII file Integrated Report by entering the following:

    %: **more <filename>**

14. Activate Command Control window using the following tool directive from the control window

    ECL> **TOOL Command_Tool**

    a. Verify a dialog box appears

    b. enter String id (ex. 100)

    c. enter Spacecraft ID (ex. AM1)

    d. Click “ok”

15. Verify a Command Control window is displayed will all five user interface (pull down) menus; File, Edit, Config, Utility, and Help.

16. Bring up the time selector dialog window to enter the paired times for the ground script.
    a. Use the "File" option from Command Control window select “Open”.
17. Enter a subset the DAS start time of the ground script selected for execution

    > **YYYY/DDD HH:MM:SS.mmm**

18. Enter a subset the DAS stop time of the ground script selected for execution

    > **YYYY/DDD HH:MM:SS:.mmm**

19. Verify the contents of the ground script are displayed in the text area of the window.
20. Verify the following items are properly displayed in the Command Control window
    a. ground script start time
    b. ground script stop time
    c. spacecraft id associated with ground script
    d. ground script status - suspended (default)
    e. ground script processing mode - auto (default)
    f. current bias time
    g. verification flags (Prerequisite State Check (PSC)=on, Command (CV)=on, and Telemetry (TV)=on) *Note: CV and TV should be set off in Rel. A*
21. Examine the ground script to ensure the commands/directives displayed represent the time period specified.
22. Click on the “Resume” button to invoke the execution of the ground script.
23. Merge a procedure with the ground script.
    a. Suspend the execution of the current ground script.
    b. Click on the "suspend" button.
    c. Verify G/S Status is “Suspend”.
24. Enter the following to start the PROC:

    ECL> **START <procname>**

    a. Click the “Resume” button to resume the suspended ground script.
    b. Verify G/S Status is “Active” indicating ground script execution has resumed.
    c. Verify procedure execution is complete.
25. Merge a directive with the current ground script.

a. Click on the “Suspend” button to suspend the execution of the current ground script.

b. Verify G/S Status is “Suspend”.

26. Enter a non command directive from the command input line.

    ECL> **PSC ON**

    a. Click on the "resume" button.

    b. Verify G/S Status is “Active” indicating ground script execution has resumed.

    c. Verify PSC status is on.

27. Search the executing ground script for a specific procedure.

    a. Use the “Utility” menu option select “Find”.

    b. Enter the procedure name in the find dialog window

    c. Verify the entire line containing the procedure is highlighted

28. Terminate the current ground script by clicking on the "kill" button.

    a. Verify a confirmation box appears confirming user wants to remove ground script

    b. Click “ok” to kill ground script

29. Close the Command Control Window

    a. Use the “File” menu option select “Quit”

    b. Verify Command Control Window closes

30. End of test

31. Log off of the EOC user station.

Test No.: TLM 2000A

Test Title: Decommutation - Health & Safety/Standby Telemetry

Test Configuration: See Appendix G

Test Support:

Telemetry packet driver “A2tlm” supporting multiple APIDs, valid sequence counts, packet length, time stamp and telemetry data values. Previously defined alphanumeric display pages Header and TlmDecom. Health & Safety and Standby telemetry mnemonics defined in the I&T database with offsets matching those output by the telemetry data driver. A predefined value file that is used by the Telemetry packet generator to input raw values for each mnemonic.

Test Description:

This test is designed to verify the ability to receive spacecraft/instrument Health & Safety and Standby CTIU EDOS Data Units (EDUs), extract CCSDS telemetry packets from the EDUs, extract all header information, extract the telemetry information from the packet application data field, and decommutate the data based on the packet APID and associated decommutation information residing in the PDB.

Following sign-on, alphanumeric telemetry pages which include parameter and associated parameter Decom value displays are invoked at the user station. The telemetry data driver is initiated, broadcasting Health & Safety telemetry onto the FOS LAN in the form of EDUs. As telemetry packets are received and the telemetry information decommutated, telemetry displays are viewed and snapped at specified times. Raw parameter values residing on alphanumeric displays are analyzed post-test to ensure decommutated values match scripted raw values for specified mnemonics. The above steps are repeated for Standby CTIU telemetry processing.

Success Criteria:

This test is considered successful when all Health & Safety/Standby telemetry header and data mnemonics are decommutated as specified and match data driven values; values as seen on multiple user stations match data driven values; static and NODATA flags are disabled from alphanumeric telemetry displays upon active data periods.

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

Password: ********

%: **cd /fos/test/am1/scripts/setup**

%: **source A2_DataServerStartup** *(wait for script completion)*

Note: Script is complete when the user gets the following message in the terminal window:

'Successful installation of signal handler'

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   Note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL> **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: ********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following event message:

   'String 100 was created.'

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=ALL CONFIG=MIRROR**

   Note: Wait to receive the following event message:

   'Successfully connected to string 100'.

7. At the user station, display the EDU Header alphanumeric page which displays telemetry header field values by entering the following:

   ECL> **P Header**

8. Verify the Header window appears at the user station and contains the following fields:
   a. Mnemonic descriptors
   b. Static flags for all descriptors
   c. NODATA flags for all descriptors
   d. Spacecraft time (SDU_SCTIME)
   e. Data source (spacecraft ID) (EDS_SCID)
   f. Quality indicator (EDS_QUALITY)
   g. APID number (SDU_PCKT_APID)
   h. Packet sequence count (SDU_PACKET_SEQ)
   i. Packet length count (SDU_PCKT_LENGTH)
   j. CCSDC Version (SDU_CCSDS_VER)
9. At the user station, display the "TLMDecom" alphanumeric page, which displays Health & Safety, Housekeeping and Standby mnemonic values, by entering the following:

   ECL> **P TLMDecom**
10. Verify the TLMDecom display appears at the user station and contains the following:
    a. Mnemonic descriptors
    b. Static flags for all descriptors
    c. NODATA flags for all descriptors
11. Invoke the EDOS telemetry driver for the multicast of Health & Safety telemetry packets for processing.
    a. In a new terminal window, enter the following:

       %: **cd /fos/test/am1/scripts/setup**

       %: **source A2tlmEnvVars**

       %: **cd /fos/test/am1/bin/sun_sparc_5-4**

       %: **A2tlm**

       Enter tlm type: **am1-hs**

       At the A2tlm prompt enter the following:

       IP address = **224.2.2.45**

       Port number = **7721**

Number of packets to send: **32**

Generate sequence errors: **0**

Packet delay in milliseconds: **8000**

12. Verify that each mnemonic's "NODATA" and "STATIC" flag indicators no longer appear on any of the display pages and that the mnemonics are marked as active (except for mnemonics that are not defined as health & safety mnemonics).
13. Verify that mnemonics that are not defined as health & safety mnemonics are still flagged as static and the NODATA indicator is still apparent.
14. View the header page and when packet 7 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: **snap**

15. View the header page and when packet 15 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: **snap**

16. View the header page and when packet 22 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: **snap**

17. View the header page and when packet 30 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: **snap**

18. Via offline analysis, verify that mnemonics SDU_SCTIME, EDS_SCID, EDS_QUALITY, SDU_PCKT_APID, SDU_PCKT_LENGTH, SDU_CCSDS_VER, and SDU_PACKET_SEQ as shown on screen snaps of the user station match values specified in Table TLM2000a-1.
19. Via offline analysis, verify that the Health & Safety telemetry mnemonics, as shown on screen snaps of the user station, match values specified in Table TLM2000A-1.
20. Disconnect from the Health and Safety string and connect to a realtime operational Standby telemetry string by entering the following in the ECL directive line:
    a. ECL> **STRING DISCONNECT STRING=100**

    Note: Wait to receive the following event message:

    'Successfully disconnected from string 100'.

Table TLM2000A-1

	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
	H&S	H&S	H&S	H&S	H&S	H&S	H&S	H&S
SDU_SCTIME	sequential	sequential	sequential	sequential	sequential	sequential	sequential	sequential
EDS_SCID	42	42	42	42	42	42	42	42
EDS_QUALITY	0	0	0	0	0	0	0	0
SDU_PCKT_APID	2	2	2	2	2	2	2	2
SDU_PCKT_LENGTH	202	202	202	202	202	202	202	202
SDU_PACKET_SEQ	sequential	sequential	sequential	sequential	sequential	sequential	sequential	sequential
SDU_CCSDS_VER	0	0	0	0	0	0	0	0
	PKT/ VALUE	**PKT/ VALUE**	**PKT/ VALUE**	**PKT/ VALUE**	**PKT/ VALUE**	**PKT/ VALUE**	**PKT/ VALUE**	**PKT/ VALUE**
PMS_TR_REA_2	20/93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0
CDH_BR_DCU1_BIT_RES	3/GO	7/GO	11/NO GO	15/NO GO	19/NO GO	23/GO	27/NO GO	31/GO
CDH_BR_PNCODE_RCVD	3/NO PULSE	7/NO PULSE	11/PULSE OCCURRED	15/PULSE OCCURRED	19/PULSE OCCURRED	23/NO PULSE	27/PULSE OCCURRED	31/NO PULSE
CDH_NR_ACT_NXT_FRSEQ	1/121.0	5/173.0	9/159.0	13/177.0	17/163.0	21/165.0	25/220.0	29/248.0
MOD_CR_PS2_ON	0/ON	4/OFF	8/ON	12/ON	16/ON	20/ON	24/OFF	28/ON

b. ECL > **STRING CONNECT STRING=100 TLMTYPE=STANDBY CONFIG= MIRROR**

Note: Wait to receive the following event message:

‘Successfully connected to string 100’.

21. Invoke the EDOS telemetry driver for the multicast of Standby telemetry packets for processing.

a. In the terminal window previously used for the A2tlm driver, enter the following:

Enter tlm type: **am1-standby**

At the A2tlm prompt enter the following:

IP address = **224.2.2.45**

Port number = **7731**

Number of packets to send: **32**

Generate sequence errors: **0**

Packet delay in milliseconds: **8000**

22. Verify that each mnemonic's "NODATA" and "STATIC" flag indicators no longer appear on any of the display pages and that the mnemonics are marked as active (except for mnemonics not defined as standby mnemonics).

23. Verify that mnemonics not defined as Standby mnemonics are still flagged as static and the NODATA indicator is still apparent.

24. View the header page and when packet 7 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: **snap**

25. View the header page and when packet 15 is sent snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: **snap**

26. View the header page and when packet 22 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: **snap**

27. View the header page and when packet 30 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: **snap**

28. Via offline analysis, verify that the mnemonics SDU_SCTIME, EDS_SCID, EDS_QUALITY, SDU_PCKT_APID, SDU_PCKT_LENGTH, SDU_CCSDS_VER, and SDU_PACKET_SEQ, as shown on screen snaps of the user station, match values specified in Table TLM2000A-2.

29. Verify that the Standby mnemonics, as shown on screen snaps for the user station, match values specified in Table TLM2000A-2.

30. Exit the telemetry driver by entering 'quit' in the console window where the Telemetry driver was running.

31. Log off the user station(s).

Table TLM2000A-2

	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
	STBY	STBY	STBY	STBY	STBY	STBY	STBY
SDU_SCTIME	sequential	sequential	sequential	sequential	sequential	sequential	sequential
EDS_SCID	42	42	42	42	42	42	42
EDS_QUALITY	0	0	0	0	0	0	0
SDU_PCKT_APID	5	5	5	5	5	5	5
SDU_PCKT_LENGTH	202	202	202	202	202	202	202
SDU_PACKET_SEQ	sequential	sequential	sequential	sequential	sequential	sequential	sequential
SDU_CCSDS_VER	0	0	0	0	0	0	0
	PKT/ VALUE	PKT/ VALUE	PKT/ VALUE	PKT/ VALUE	PKT/ VALUE	PKT/ VALUE	PKT/ VALUE
CDH_BR_STBY_WD1	1/99.0	99.0	99.0	99.0	99.0	99.0	99.0
CDH_BR_STBY_WD2	0/1	5/11	10/21	15/31	20/41	25/51	30/61
CDH_BR_STBY_WD3	0/2	5/12	10/22	15/32	20/42	25/52	30/62
CDH_BR_STBY_WD4	0/3	5/13	10/23	15/33	20/43	25/53	30/63
CDH_BR_STBY_WD5	0/4	5/14	10/24	15/34	20/44	25/54	30/64

Test No.: TLM 2010A

Test Title: Decommutation - Housekeeping Telemetry

Test Configuration: See Appendix G

Test Support:

Telemetry packet driver “A2tlm” supporting multiple APIDs, valid sequence counts, packet length, time stamp and telemetry data values. Previously defined alphanumeric display pages Header and TlmDecom. Housekeeping telemetry mnemonics defined in the I&T database with offsets matching those output by the telemetry data driver. A predefined value file that is used by the Telemetry packet generator to input raw values for each mnemonic.

Test Description:

This test is designed to verify the ability to receive spacecraft/instrument Housekeeping Data Units (EDUs), extract CCSDS telemetry packets from the EDUs, extract all header information, extract the telemetry information from the packet application data field, and decommutate the data based on the packet APID and associated decommutation information residing in the PDB.

Following sign-on, alphanumeric telemetry pages which include parameter and associated parameter Decom value displays are invoked at the user station. The telemetry data driver is initiated, broadcasting Houskeeping telemetry onto the FOS LAN in the form of EDUs. As telemetry packets are received and the telemetry information decommutated, telemetry displays are viewed and snapped at specified times. Raw parameter values residing on alphanumeric displays are analyzed post-test to ensure decommutated values match scripted raw values for specified mnemonics.

Success Criteria:

This test is considered successful when all Houskeeping telemetry header and data mnemonics are decommutated as specified and match data driven values; values as seen on multiple user stations match data driven values; static and NODATA flags are disabled from alphanumeric telemetry displays upon active data periods.

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

    Username: **********

    Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

    %: **rlogin foseoc7 -l *username***

    Password: **********

%: **cd /fos/test/am1/scripts/setup**

%: **source A2_DataServerStartup** *(wait for script completion)*

Note: Script is complete when the user gets the following message in the terminal window:

'Successful installation of signal handler'

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   Note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL> **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following event message:

   'String 100 was created.'

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=ALL CONFIG= MIRROR**

   Note: Wait to receive the following event message:

   'Successfully connected to string 100'.

7. At the user station, display the EDU Header alphanumeric page which displays telemetry header field values by entering the following:

   ECL> **P Header**

8. Verify the Header window appears at the user station and contains the following fields:

a. Mnemonic descriptors

b. Static flags for all descriptors

c. NODATA flags for all descriptors

d. Spacecraft time (SDU_SCTIME)

e. Data source (spacecraft ID) (EDS_SCID)

f. Quality indicator (EDS_QUALITY)

g. APID number (SDU_PCKT_APID)

h. Packet sequence count (SDU_PACKET_SEQ)

i. Packet length count (SDU_PCKT_LENGTH)

j. CCSDC Version (SDU_CCSDS_VER)

9. At the user station, display the "TLMDecom" alphanumeric page, which displays Health & Safety, Housekeeping and Standby mnemonic values, by entering the following:

   ECL> **P TLMDecom**

10. Verify the TLMDecom display appears at the user station and contains the following:

    a. Mnemonic descriptors

    b. Static flags for all descriptors

    c. NODATA flags for all descriptors

11. Invoke the EDOS telemetry driver for the multicast of Health & Safety telemetry packets for processing.

    a. In a new terminal window, enter the following:

       %: **cd /fos/test/am1/scripts/setup**

       %: **source A2tlmEnvVars**

       %: **cd /fos/test/am1/bin/sun_sparc_5-4**

       %: **A2tlm**

       Enter tlm type: **am1-hk**

       At the A2tlm prompt enter the following:

       IP address = **224.2.2.45**

       Port number = **7711**

       Number of packets to send: **64**

Generate sequence errors: **0**

Packet delay in milliseconds: **8000**

12. Verify that each mnemonic's "NODATA" and "STATIC" flag indicators no longer appear on any of the display pages and that the mnemonics are marked as active (except for mnemonics that are not defined as health & safety mnemonics).
13. Verify that mnemonics that are not defined as health & safety mnemonics are still flagged as static and the NODATA indicator is still apparent.
14. View the header page and when packet 15 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: **snap**

15. View the header page and when packet 30 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: **snap**

16. View the header page and when packet 45 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: **snap**

17. View the header page and when packet 60 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: snap

18. Via offline analysis, verify that mnemonics SDU_SCTIME, EDS_SCID, EDS_QUALITY, SDU_PCKT_APID, SDU_PCKT_LENGTH, SDU_CCSDS_VER, and SDU_PACKET_SEQ as shown on screen snaps of the user station match values specified in Table TLM2000a-1.
19. Via offline analysis, verify that the Health & Safety telemetry mnemonics, as shown on screen snaps of the user station, match values specified in Table TLM2000A-1.
20. Exit the telemetry driver by entering 'quit' in the console window where the Telemetry driver was running.
21. Log off the user station(s).

Table TLM2010A-1

	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
	HKPG	HKPG	HKPG	HKPG	HKPG	HKPG	HKPG	HKPG
SDU_SCTIME	sequential	sequential	sequential	sequential	sequential	sequential	sequential	sequential
EDS_SCID	42	42	42	42	42	42	42	42
EDS_QUALITY	0	0	0	0	0	0	0	0
SDU_PCKT_APID	1	1	1	1	1	1	1	1
SDU_PCKT_LENGTH	1658	1658	1658	1658	1658	1658	1658	1658
SDU_PACKET_SEQ	sequential	sequential	sequential	sequential	sequential	sequential	sequential	sequential
SDU_CCSDS_VER	0	0	0	0	0	0	0	0
	PKT/ VALUE	**PKT/ VALUE**	**PKT/ VALUE**	**PKT/ VALUE**	**PKT/ VALUE**	**PKT/ VALUE**	**PKT/ VALUE**	**PKT/ VALUE**
CDH_IR_DAS_BDU_EPCA	2/24.15	10/18.4	18/11.04	26/9.43	34/17.25	42/17.02	50/20.93	58/25.99
CDH_IR_DAS_BDU_EPCB	2/24.265	10/18.515	18/11.155	26/9.545	34/17.365	42/17.135	50/21.045	58/26.105
TCS_VR_FSS_H_HTRA	2/216.0	10/166.0	18/102.0	26/88.0	34/156.0	42/154.0	50/188.0	58/232.0
CDH_VR_PWRB_A4T_2V	2/220.0	220.0	220.0	220.0	220.0	220.0	220.0	220.0
PMS_VR_PMEA1_10V	5/133.0	13/154.0	21/91.0	29/44.0	37/83.0	45/98.0	53/136.0	61/197.0

Test No.: TLM 2020A

Test Title: Engineering Unit Conversion

Test Configuration: See Appendix G

Test Support:

Telemetry packet driver “A2tlm” supporting multiple APIDs, valid sequence counts, packet length, time stamp and telemetry data values. Previously defined alphanumeric display page EUConv. Database with conversion information defined, including calibration coefficients based on seventh order or lower polynomial functions and linear interpolations of line segments containing up to 15 point pairs.

Test Description:

This test is designed to verify the FOS’ capability of providing conversions from raw values to Engineering Units (EU’s) for all AM-1 supported real-time telemetry types. The basic demonstration will utilize test mnemonics with conversion curves and telemetry locations modeled after project defined mnemonics.

Following sign-on, alphanumeric telemetry pages which visually associate parameter and associated parameter EU value displays are invoked at the EOC user station. The telemetry data driver is initiated, broadcasting Housekeeping telemetry onto the FOS LAN in the form of EDUs. As telemetry packets are received and parameter EU conversions are displayed, telemetry displays are snapped. Parameter EU values as shown on alphanumeric displays are analyzed post-test to ensure EU values match the converted raw value when each parameter's database defined calibration coefficient is applied. The above steps are repeated for Health & Safety and Standby telemetry streams.

Success Criteria:

This test is considered successful when EU values for all real-time telemetry types match conversions for telemetry driver applied raw data, and that EU values are displayed via telemetry display pages.

Procedures:

1. Log onto a EOC workstation, dedicated as a data server, under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. At the UNIX prompt, change directory to /fos/test/am1/scripts/setup. Invoke the Data Server startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **A2_DataServerStartup** *(wait for script completion)*

3. Log onto the EOC workstation, dedicated as a user station, under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

4. At the UNIX prompt, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

5. Log onto a EOC workstation, dedicated as a real-time server, under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

6. At the UNIX prompt, change directory to /fos/test/am1/scripts/setup. Invoke the Realtime Server startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **A2_RealtimeServerStartup** *(wait for script completion)*

   Note: script is complete when the user gets an event message stating that string 100 was created.

7. Connect to a string, to accept Housekeeping data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=ALL CONFIG= MIRROR**

8. At the user station, display EUConv alphanumeric page. This page contains parameters including: 1 to 32 bit lengths, containing varied coefficients based on seventh order or lower polynomial functions and linear interpolations of line segments containing up to 15 point pairs - see table TLM2020A-3 for details. Enter the following in the ECL directive line of the Control window.

   ECL> **P EUConv**

9. Verify the EUConv display appears at the user station and contains the following:

   a. Mnemonic descriptors

   b. Current values for all descriptors

   c. Static flags for all descriptors

   d. NODATA flags for all descriptors

10. At the real-time server, invoke the EDOS telemetry driver for the multicast of Housekeeping telemetry packets for processing.

    a. In a console window, enter the following:

        %: **cd /fos/test/am1/scripts/setup**

        %: **source A2tlmEnvVars**

        %: **cd /fos/test/am1/bin/sparc-sun-solaris2.4**

        %: **A2tlm**

        enter tlm type: **am1-hk**

        At the A2tlm prompt enter the following:

        IP address = **224.2.2.45**

            Port number = **7711**

            Number of packets to send: **64**

            Generate sequence errors: **0**

            Packet delay in milliseconds: **8000**

11. View the real-time server and when packet 15 is sent, snap the telemetry pageEUConv at the user station by entering the following inside the console window:

    %: **snap**

12. View the real-time server and when packet 30 is sent, snap the telemetry pageEUConv at the user station by entering the following inside the console window:

    %: **snap**

13. View the real-time server and when packet 45 is sent, snap the telemetry page EUConv at the user station by entering the following inside the console window:

    %: **snap**

14. View the real-time server and when packet 60 is sent, snap the telemetry page EUConv at the user station by entering the following inside the console window:

    %: **snap**

15. Exit the telemetry driver by entering ‘quit’ in the telemetry driver window.

16. Via offline analysis, verify that the Housekeeping telemetry mnemonics, as shown on screen snaps of the user station, match values specified in Table TLM2020A-1.

17. At the real-time server, invoke the EDOS telemetry driver for the multicast of Health & Safety telemetry packets for processing.

a. In a console window, enter the following:

%: **cd /fos/test/am1/bin/sparc-sun-solaris2.4**

%: **A2tlm**

enter tlm type: **am1-hs**

At the A2tlm prompt enter the following:

IP address = **224.2.2.45**

Port number = **7721**

Number of packets to send: **32**

Generate sequence errors: **0**

Packet delay in milliseconds: **8000**

18. View the real-time server and when packet 7 is sent, snap the telemetry page EUConv at the user station by entering the following inside the console window:

    %: **snap**

19. View the real-time server and when packet 15 is sent, snap the telemetry page EUConv at the user station by entering the following inside the console window:

    %: **snap**

20. View the real-time server and when packet 22 is sent, snap the telemetry page EUConv at the user station by entering the following inside the console window:

    %: **snap**

21. View the real-time server and when packet 30 is sent, snap the telemetry page EUConv at the user station by entering the following inside the console window:

    %: **snap**

22. Exit the telemetry driver by entering ‘quit’ in the telemetry driver window.

23. Via offline analysis, verify that the Health & Safety telemetry mnemonics, as shown on screen snaps of the user station, match values specified in Table TLM2020A-2.

24. At the real-time server, invoke the EDOS telemetry driver for the multicast of Standby telemetry packets for processing.

    a. In a console window, enter the following:

    %: **cd /fos/test/am1/bin/sparc-sun-solaris2.4**

    %: **A2tlm**

    enter tlm type: **am1-standby**

At the A2tlm prompt enter the following:

IP address = **224.2.2.45**

Port number = **7731**

Number of packets to send: **32**

Generate sequence errors: **0**

Packet delay in milliseconds: **8000**

25. View the real-time server and when packet 7 is sent, snap the telemetry pageEUConv at the user station by entering the following inside the console window:

    %: **snap**

26. View the real-time server and when packet 15 is sent, snap the telemetry pageEUConv at the user station by entering the following inside the console window:

    %: **snap**

27. View the real-time server and when packet 22 is sent, snap the telemetry page EUConv at the user station by entering the following inside the console window:

    %: **snap**

28. View the real-time server and when packet 30 is sent, snap the telemetry page EUConv at the user station by entering the following inside the console window:

    %: **snap**

29. Exit the telemetry driver by entering ‘quit’ in the telemetry driver window.
30. Via offline analysis, verify that the Standby telemetry mnemonics, asshown on screen snaps of the user station, match values specified in Table TLM2020A-3.
31. Log off the user station(s).

Table TLM2020A-1

	Column 1	Column 2	Column 3	Column 4
	HKPG tlm. PKT 15	**HKPG tlm. PKT 30**	**HKPG tlm. PKT 45**	**HKPG tlm. PKT 60**
COM_SR_SBT2_DOP_SUM	9.0	21.0	33.0	45.0
COM_SR_SBT2_LO1_ERR	230.0	75.0	202.0	245.0
COM_SR_SBT2_LO2_ERR	-5.0238	-4.0777	-4.9568	-5.0511
MIS_IR_CAMERA_AA28V	-13191197.002	-276048668.082	-1211246827.55	-247156898.654
MIS_IR_CAMERA_CA28V	-63375.236	-2363434.3835	-15272749.258	-54221261.1075

Table TLM2020A-2

	Column 1	Column 2	Column 3	Column 4
	H&S tlm. PKT 7	**H&S tlm. PKT 15**	**H&S tlm. PKT 22**	**H&S tlm. PKT 30**
CDH_IR_RWA_BDU_EPCA	1.47	1.5925	1.6905	3.4055
CDH_TR_PRP_BDU_EPCA	61.0	66.0	70.0	140.0
COM_TR_DASM2_OSC	10.9	13.0	13.4	21.6
EPS_IR_BPC2_A	9.12	10.8	11.12	17.68
GNC_TR_ACE_EPCA	19.857	12.3434	10.821	-18.583

Table TLM2020A-3

	Column 1	Column 2	Column 3	Column 4
	STBY tlm. PKT 7	**STBY tlm. PKT 15**	**STBY tlm. PKT 22**	**STBY tlm. PKT 30**
CDH_BR_STBY_WD6	16	36	46	56
CDH_BR_STBY_WD7	17	37	47	57
CDH_BR_STBY_WD8	18	38	48	58
CDH_BR_STBY_WD9	19	39	49	59
CDH_BR_STBY_WD10	20	40	50	60

Test No.: TLM 2022A

Test Title: Simultaneous I and Q Channel Data Receipt

Test Configuration: See Appendix G

Test Support:

Telemetry packet driver "A2tlm" supporting multiple APIDs, valid sequence counts, packet length, time stamp and telemetry data values. Validated I&T database with conversion information defined. Psutil driver used to view the parameter server.

Test Description:

This test is designed to verify the FOS' capability of providing telemetry processing of telemetry streams received on the I and Q channels simultaneously. The user will be using a driver called psutil for verification of simultaneous data receipt.

Following sign-on, psutil is brought up in separate terminal windows. One window will monitor the I channel parameter server while the other monitors the Q channel parameter server. The telemetry driver is started on both the I and Q channels and the parameters servers are viewed to ensure simultaneous data receipt.

Success Criteria:

This test is considered successful when telemetry decom/EU converted values as displayed on alphanumeric display pages match scripted values as output on the I and Q channels; telemetry processing on I and Q channels is not degraded as a result of simultaneous telemetry processing; alphanumeric pages support both I and Q channel telemetry processing display information.

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

    Username: **********

    Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

    %: **rlogin foseoc7 -l *username***

    Password: **********

    %: **cd /fos/test/am1/scripts/setup**

    %: **source A2_DataServerStartup** *(wait for script completion)*

    Note: Script is complete when the user gets the following message in the terminal window:

‘Successful installation of signal handler’

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

    %: **cd /fos/test/am1/scripts/setup**

    %: **source A2_UserStationStartup** *(wait for script completion)*

    Note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

    ECL> **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

    %: **rlogin foseoc6 -l *username***

    Password: **********

    %: **cd /fos/test/am1/scripts/setup**

    %: **source A2_RealtimeServerStartup** *(wait for script completion)*

    Note: Script is complete when the user gets the following event message:

    ‘String 100 was created.’

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

    ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG= MIRROR**

    Note: Wait to receive the following event message:

    ‘Successfully connected to string 100’.

7. Look, in Netscape, at the FOS Database homepage to find the port numbers for the I and Q channel parameter servers.

    a. Enter the following from a terminal window:

        %: **netscape&**

    b. Verify that Netscape is invoked.

    c. Invoke the FOS Database homepage by clicking the mouse on bookmarks and dragging to FOS Database.

    d. Verify that the FOS Database Homepage is displayed.

e. Click the mouse on ‘Nameserver’.

f. Verify that the Nameserver access form is displayed.

g. Enter the following into the StingID field:

> **100**

h. Click the mouse on the ‘Submit’ button.

g. Scan the entries for the first and second ParameterServer processes. The first process is for the I channel and the second process is for the Q channel.

h. Note the port number in the last line of the entry. The port number is the number before the colon in that entry.

8. In a new terminal window, use psutil driver to view the parameter server on the I channel. Select the packet sequence to view in the parameter server and receive continuous updates.

%: **cd /fos/test/am1/scripts/setup**

%: **setenv SCRIPT UserStation**

%: **source FosEnvVars**

%: **cd ..**

%: **psutil <workstation> <port number for the parameter server I channel>**

> **1**

> **1**

enter pid: **1757**

> **f**

> **3**

9. In a new terminal window, use psutil driver to view the parameter server on the Q channel. Select the packet sequence to view in the parameter server and receive continuous updates.

%: **cd /fos/test/am1/scripts/setup**

%: **setenv SCRIPT UserStation**

%: **source FosEnvVars**

%: **cd ..**

%: **psutil <workstation> <port number for the parameter server Q channel>**

> **1**

> **1**

enter pid: **1757**

> **f**

> **3**

Note: Workstation is the current workstation that the telemetry is being sent from.

10. Invoke the EDOS telemetry driver for the multicast of housekeeping telemetry packets for processing on the I channel.

    a. In a new terminal window, enter the following:

        %: **cd /fos/test/am1/scripts/setup**

        %: **source A2tlmEnvVars**

        %: **cd /fos/test/am1/bin/sun_sparc_5-4**

        %: **A2tlm**

        Enter tlm type: **am1-hk**

        At the A2tlm prompt enter the following:

            IP address = **224.2.2.45**

            Port number = **7711**

            Number of packets to send: **-1** ;sends infinite number of packets

            Generate sequence errors: **0**

            Packet delay in milliseconds: **4000**

11. Invoke the EDOS telemetry driver for the multicast of housekeeping telemetry packets for processing on the Q channel.

    a. In a new terminal window, enter the following:

        %: **cd /fos/test/am1/scripts/setup**

        %: **source A2tlmEnvVars**

        %: **cd /fos/test/am1/bin/sun_sparc_5-4**

        %: **A2tlm**

        Enter tlm type: **am1-hk**

        At the A2tlm prompt enter the following:

            IP address = **224.2.2.45**

Port number = **7712**

Number of packets to send: **-1** ;sends infinite number of packets

Generate sequence errors: **0**

Packet delay in milliseconds: **4000**

12. By viewing the terminal windows with the psutil driver running, verify that telemetry values are updated for both the I channel and the Q channel.

13. Stop the telemetry drivers by entering CTRL-C in the telemetry driver windows.

Test No.: TLM 2025A

Test Title: Multi-byte Parameter Processing

Test Configuration: See Appendix G

Test Support:

Telemetry packet driver “A2tlm” supporting multiple APIDs, valid sequence counts, packet length, time stamp and telemetry data values. Previously defined alphanumeric display pages Header and multibyte. ODF files supporting contiguous and non-contiguous multi-byte parameters up to 64 bits and up to 8 pieces. Previously generated report outlining mnemonic to mnemonic offset mapping.

Test Description:

This test is designed to verify the ability to decommutate and convert multi-byte parameters in all real-time telemetry formats, including housekeeping, health & safety and standby.

Following sign-on, alphanumeric telemetry pages which include parameter and associated parameter decom value displays are invoked. The telemetry data driver is initiated, broadcasting values for previously defined multi-byte parameters. As telemetry packets are received and the telemetry information decommutated, telemetry displays are viewed and printed at specified times. Parameter values residing on alphanumeric displays are analyzed post-test to ensure decommutated values match scripted raw values for specified mnemonics.

Success Criteria:

This test is considered successful when all multi-byte parameters are decommutated as specified and match data driven values; The database is able to support up to 8 pieces and 64 bits for any single multi-byte parameter; multi-byte parameters are not decommutated until the last “piece” of the multi-byte definition is received.

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

Note: Script is complete when the user gets the following message in the terminal window:

‘Successful installation of signal handler’

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   Note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL> **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following event message:

   ‘String 100 was created.’

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG= MIRROR**

   Note: Wait to receive the following event message:

   ‘Successfully connected to string 100’.

7. At the user station, display the EDU Header alphanumeric page which displays telemetry header field values by entering the following:

   ECL> **P Header**

8. Verify the Header window appears at the user station and contains the following fields:

   a. Mnemonic descriptors

   b. Static flags for all descriptors

c. NODATA flags for all descriptors

d. Spacecraft time (SDU_SCTIME)

e. Data source (spacecraft ID) (EDS_SCID)

f. Quality indicator (EDS_QUALITY)

g. APID number (SDU_PCKT_APID)

h. Packet sequence count (SDU_PACKET_SEQ)

i. Packet length count (SDU_PCKT_LENGTH)

j. CCSDC Version (SDU_CCSDS_VER)

9. At the user station, display the “multibyte” alphanumeric page, which displays Health & Safety, Housekeeping and Standby mnemonic values, by entering the following:

   ECL> **P multibyte**

10. Verify the multibyte display appears at the user station and contains the following:

    a. Mnemonic descriptors

    b. Static flags for all descriptors

    c. NODATA flags for all descriptors

11. Invoke the EDOS telemetry driver for the multicast of Health & Safety telemetry packets for processing.

    a. In a new terminal window, enter the following:

       %: **cd /fos/test/am1/scripts/setup**

       %: **source A2tlmEnvVars**

       %: **cd /fos/test/am1/bin/sun_sparc_5-4**

       %: **A2tlm**

       Enter tlm type: **am1-hs**

       At the A2tlm prompt enter the following:

       IP address = **224.2.2.45**

       Port number = **7721**

       Number of packets to send: **32**

       Generate sequence errors: **0**

       Packet delay in milliseconds: **8000**

12. Verify that each mnemonic's "NODATA" and "STATIC" flag indicators no longer appear on any of the display pages and that the mnemonics are marked as active (except for mnemonics that are not defined as health & safety mnemonics).
13. Verify that mnemonics that are not defined as health & safety mnemonics are still flagged as static and the NODATA indicator is still apparent.
14. View the header page and when packet 7 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: **snap**

15. View the header page and when packet 15 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: **snap**

16. View the header page and when packet 22 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: **snap**

17. View the header page and when packet 30 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: **snap**

18. Via offline analysis, verify that mnemonics SDU_SCTIME, EDS_SCID, EDS_QUALITY, SDU_PCKT_APID, SDU_PCKT_LENGTH, SDU_CCSDS_VER, and SDU_PACKET_SEQ as shown on screen snaps of the user station match values specified in Table TLM2000A-1.
19. Via offline analysis, verify that the Health & Safety telemetry mnemonics, as shown on screen snaps of the user station, match values specified in Table TLM2025A-1.
20. Exit the telemetry driver by entering 'quit' in the console window where the Telemetry driver was running.
21. Log off the user station(s).

TLM2025-A

	PKT/ VALUE	**PKT/ VALUE**	**PKT/ VALUE**
CDH_BR_MULTI_2	0/4369	15/4370	30/4371

Test No.: TLM 2027A

Test Title: Limits Processing

Test Configuration: See Appendix G

Test Support:

Telemetry packet driver "A2tlm" supporting multiple APIDs, valid sequence counts, packet length, time stamp and telemetry data values. Previously generated report outlining parameter limit information. Input data file "A2tlmHKValues" used to supply the telemetry driver with values.

Test Description:

This test is designed to verify the ability to report on individual telemetry parameter limit violations according to a given parameter's associated raw/EU limits database definition.

Following sign-on and initiation of the I&T database as the operational database and initialization of a real-time string in support of the AM-1 spacecraft, alphanumeric display pages and the real-time events page is invoked. The telemetry data driver is initiated, broadcasting housekeeping telemetry onto the FOS LAN at a rate of 16 kbps. Limit conditions are simulated, ranging from red low limit violation to red high limit violations; alphanumeric and event pages are snapped at specified periods and compared against scripted limits conditions to determine accuracy of limits reporting.

Success Criteria:

This test is considered successful when event messages are generated and displayed for each mnemonic incurring a limit violation or change in violation (i.e. yellow to red/red to yellow) and for those conditions where individual parameter limit violations become nominal.

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

Note: Script is complete when the user gets the following message in the terminal window:

‘Successful installation of signal handler’

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   Note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL> **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following event message:

   ‘String 100 was created.’

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG= MIRROR**

   Note: Wait to receive the following event message:

   ‘Successfully connected to string 100’.

7. At the user station, display the Header and Alarm alphanumeric pages by entering the following:

   ECL> **P Header**

   ECL> **P Alarm**

8. Verify the Header and Alarm alphanumeric page displays appear.

9. Invoke the EDOS telemetry driver for the multicast of housekeeping telemetry packets for processing.

    a. In a new terminal window, enter the following:

        %: **cd /fos/test/am1/scripts/setup**

        %: **source A2tlmEnvVars**

        %: **cd /fos/test/am1/bin/sparc-sun-solaris2.4**

        %: **A2tlm**

        Enter tlm type: **am1-hk**

        At the A2tlm prompt enter the following:

            IP address = **224.2.2.45**

            Port number = **7711**

            Number of packets to send: **64**

            Generate sequence errors: **no**

            Packet delay in milliseconds: **4000**

10. Monitor the Alarm alphanumeric display and the Event display and verify the following:

    a. The telemetry mnemonic COM_PR_SBT2_FWD_RF has a change in limit condition every update.

    b. Each telemetry mnemonic violating a limit condition is marked so accordingly (i.e. RH, YH, YL, RL).

    c. A notification is received for every change in limit condition for each telemetry mnemonic. The notification will contain the following:

        (1) Current packet time stamp

        (2) Telemetry mnemonic

        (3) Parameter value

        (4) Limit condition

        (5) Assigned limit values

    d. Notifications without an alarm are received for yellow limit violations.

    e. Notifications with an alarm are received for red violations.

11. View the header page and when packet 7 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

%: **snap**

12. View the header page and when packet 15 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: **snap**

13. View the header page and when packet 22 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: **snap**

14. View the header page and when packet 30 is sent, snap the telemetry pages TLMDecom and Header at the user station by entering the following inside a terminal window:

    %: **snap**

15. Exit the telemetry driver by entering 'quit' in the console window where the Telemetry driver was running.

16. Log off the user station(s).

Table TLM2027A-1

	STBY	STBY	STBY	STBY	STBY	STBY	STBY	STBY
	PKT/ LIMIT	**PKT/ LIMIT**	**PKT/ LIMIT**	**PKT/ LIMIT**	**PKT/ LIMIT**	**PKT/ LIMIT**	**PKT/ LIMIT**	**PKT/ LIMIT**
COM_CR_SBT2_RCV OFSET	2/RL	10/RL	18/YL	26/norm	34/norm	42/norm	50/YH	58/RH
COM_CR_SBT2_XMTR OFSET	2/RL	10/RL	18/RL	26/RL	34/norm	42/norm	50/norm	58/YH
COM_PR_SBT2_FWD_ RF	0/RL	8/RH	16/norm	24/YL	32/YH	40/norm	48/YH	56/RH
COM_IR_SSPA1	0/norm	8/norm	16/RL	24/RL	32/YL	40/YL	48/norm	56/norm
COM_IR_SSPA2	0/RH	8/YH	16/YL	24/RL	32/norm	40/norm	48/YH	56/RH

Test No.: TLM 2030A

Test Title: Telemetry Data Dropout

Test Configuration: See Appendix G

Test Support: Telemetry packet driver “A2TLM” supporting multiple APIDs, valid sequence counts, packet length, time stamp and telemetry data values.

Test Description:

This test is designed to verify the ability to mark individual telemetry parameters as "static" when one of two conditions exist: (1) The telemetry stream has not been received for a 5 second period, or (2) data has not been received for any given parameter within a spacecraft master cycle period.

Following sign-on, alphanumeric telemetry pages which visually associate parameter and associated parameter decom values are invoked at EOC user stations. The telemetry data driver is initiated, broadcasting housekeeping telemetry onto the FOS LAN at a rate of 16 kbps. Data dropout periods are simulated, ranging from one to multiple packets. As telemetry packets are received and EU conversions are displayed, alphanumeric displays are printed. Static indicators associated with each parameter are compared against dropout periods in order to verify timely flagging of static indicators for each parameter.

Success Criteria:

This test is considered successful when all telemetry parameters are marked as “static” and “nodata” upon initialization; all parameters are marked as static upon data dropout time-out period (i.e. 5 seconds); any mnemonic not being supplied with data values for any time period greater than one master cycle is marked as STATIC; event messages are received upon missing packet and missing major cycle conditions.

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: ************

   Password: ************

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: ************

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

Note: Script is complete when the user gets the following message in the terminal window:

‘Successful installation of signal handler’

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   Note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL> **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following event message:

   ‘String 100 was created.’

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG= MIRROR**

   Note: Wait to receive the following event message:

   ‘Successfully connected to string 100’.

7. At the user station, display the EDU Header alphanumeric page which displays telemetry header field values by entering the following:

   ECL> **P Header**

8. Verify the EDU_header window appears at the user station and contains the following fields:

   a. Mnemonic descriptors

b. Static flags for all descriptors

c. NODATA flags for all descriptors

d. Spacecraft time (SDU_SCTIME)

e. Data source (spacecraft ID) (EDS_SCID)

f. Quality indicator (EDS_QUALITY)

g. APID number (SDU_PCKT_APID)

h. Packet sequence count (SDU_PACKET_SEQ)

i. Packet length count (SDU_PCKT_LENGTH)

j. CCSDC Version (SDU_CCSDS_VER)

9. At the user station, display the “STBYOnly” alphanumeric page, which displays Standby mnemonic values, by entering the following:

   ECL> **P STBYOnly**

10. Invoke the EDOS telemetry driver for the multicast of Standby telemetry packets for processing.

a. In a terminal window, enter the following:

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2tlmEnvVars**

   %: **cd /fos/test/am1/bin/sun_sparc_5-4**

   %: **A2tlm**

   Enter tlm type: **am1-standby**

   At the A2tlm prompt enter the following:

      IP address = **224.2.2.45**

      Port number = **7731**

      Number of packets to send: **96**

      Generate sequence errors: **0**

      Packet delay in milliseconds: **2000**

11. Verify that the mnemonic CDH_BR_STBY_WD1 becomes static when the third master cycle is started. EDS_CYCLE_COUNT will equal three when this happens.

12. Verify, on the event display, that a message is received indicated a missing packet was detected.

13. Invoke the EDOS telemetry driver for the multicast of Standby telemetry packets for processing. Send the packets 6000 milliseconds appart to verify a data dropout after 5 seconds.

    a. In a terminal window, enter the following:

        %: **cd /fos/test/am1/scripts/setup**

        %: **source A2tlmEnvVars**

        %: **cd /fos/test/am1/bin/sun_sparc_5-4**

        %: **A2tlm**

        Enter tlm type: **am1-standby**

        At the A2tlm prompt enter the following:

            IP address = **224.2.2.45**

            Port number = **7731**

            Number of packets to send: **10**

            Generate sequence errors: **0**

            Packet delay in milliseconds: **5000**

14. Log off the user station(s).

Test No.: TLM 2040A

Test Title: Real-time Graph Display

Test Configuration: See Appendix G

Test Support:

Telemetry packet driver “A2tlm” supporting multiple APIDs, valid sequence counts, packet length, time stamp and telemetry data values. A file, to be input into the A2tlm driver, called A2tlmHKValues.

Test Description:

This test verifies the ability to display real-time spacecraft and instrument telemetry information via graph display where up to six telemetry parameter values are displayed in Parameter versus Time format.

The test begins with the initialization of a real-time logical string, initialization of an EOC user station in support of the real-time string and selection of graph functionality from display builder tool palette options. The graph is created and parameters are chosen to be displayed via the display builder. The telemetry data driver is initialized, broadcasting housekeeping data packets. As graphs are updated with real-time values, the graph is printed at various time intervals and compared to scripted values to ensure data display integrity.

Success Criteria:

This test is considered successful when Parameter vs. Time graphs are constructed based on user-specified criteria selected from display builder palette options; Graph may be zoomed in/zoomed out based on user requests.

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

    Username: **********

    Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

    %: **rlogin foseoc7 -l *username***

    Password: **********

    %: **cd /fos/test/am1/scripts/setup**

    %: **source A2_DataServerStartup** *(wait for script completion)*

Note: Script is complete when the user gets the following message in the terminal window:

‘Successful installation of signal handler’

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   Note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL> **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following event message:

   ‘String 100 was created.’

6. Invoke the display builder by entering the following in the ECL directive line:

   ECL> **TOOL Display_Builder**

7. Verify the display builder palette appears on the display screen and contains button options for tables/graphs, schematics and display item formats.

8. Build a parameter vs. time plot display.

   a. Select the GRAPH option from the Tables & Graph section.

   b. Drag and drop the palette into the Display Builder Dynamic Page window.

   c. Click on the ‘edit’ pull down menu and select ‘Logical String Management’.

   d. Verify that the Logical String Management window is displayed.

   e. Click the mouse on the ‘Add’ button.

   f. Verify that ‘Realtime Operational Default’ is selected.

g. Click the mouse on the ‘OK’ button.

h. Select the following parameters to be used in the table:

(1) SDU_PACKET_SEQ

(2) EDS_CYCLE_COUNT

(3) CDH_BR_STBY_WD2

Note: Reference FUI 2060A on how to select parameters in the Display builder.

9. Save the Graph just created.

a. Click the mouse on the file pull down menu.

b. Click the mouse on the ‘Save as…’ option.

c. Enter the following into the selection field at the end of the directory path /fos/test/am1/displaydefs/newpages:

> **graph1**

d. Click the mouse on the ‘OK’ button.

10. Close the Display Builder.

11. Bring the workstation down by entering the following in the window that the station was brought up in:

%: **MyKill**

12. Make the graph display active by entering the following in a terminal window:

%: **cd /fos/test/am1/scripts/setup**

%: **setenv SCRIPT UserStation**

%: **source FosEnvVars**

%: **ProcessPms**

13. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

%: **cd /fos/test/am1/scripts/setup**

%: **source A2_UserStationStartup** *(wait for script completion)*

Note: Script is complete when the user has six planning and scheduling windows and the Control window.

14. Invoke the Event Display window by entering the following in the ECL directive line:

ECL> **TOOL Event_Display**

15. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

    ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG= MIRROR**

    Note: Wait to receive the following event message:

    ‘Successfully connected to string 100’.

16. At the user station, display the “graph1” alphanumeric page by entering the following in the ECL directive line:

    ECL> **P graph1**

17. Invoke the EDOS telemetry driver for the multicast of Housekeeping telemetry packets for processing.

    a. In a new terminal window, enter the following:

       %: **cd /fos/test/am1/scripts/setup**

       %: **source A2tlmEnvVars**

       %: **cd /fos/test/am1/bin/sun_sparc_5-4**

       %: **A2tlm**

       Enter tlm type: **am1-hk**

       At the A2tlm prompt enter the following:

       IP address = **224.2.2.45**

       Port number = **7711**

       Number of packets to send: **70**

       Generate sequence errors: **0**

       Packet delay in milliseconds: **4000**

18. Verify the following by viewing the graph display:

    a. SDU_PACKET_SEQ and EDS_CYCLE_COUNT are sequential.

    b. There is an indication that CDH_BR_STBY_WD2 is not part of the telemetry stream.

19. Zoom in on the PLOT1 graph via the following mouse/keyboard input:

    Hold the ‘Ctrl’ keyboard key.

    Click the mouse button and drag to zoom in on the boxed area.

20. Verify granularity of the graph becomes more defined upon each zoom in sequence and that the current range of time matches the Zoom view of the graph.

21. Zoom out on the PLOT1 graph via the following mouse/keyboard input:

    From the keyboard, type the letter ‘m’.

22. Verify granularity of the graph decreases upon each zoom out sequence, and that the current range of time matches the zoom view of the graph.

23. Exit the telemetry driver by entering ‘quit’ in the console window where the Telemetry driver was running.

24. Log off the user station(s).

Test No.: TLM 2050A

Test Title: Real-time Telemetry Tables

Test Configuration: See Appendix G

Test Support:

Telemetry packet driver "A2tlm" supporting multiple APIDs, valid sequence counts, packet length, time stamp and telemetry data values. A file, to be input into the A2tlm driver, called A2StandbyValues.

Test Description:

This test verifies the ability to manage and display telemetry spreadsheet tables displaying up to 300 rows of real-time telemetry values.

The test begins with the selection of the spreadsheet function from a predefined dynamic page. The spreadsheet mnemonics are chosen and saved from spreadsheet menu options. Once spreadsheet mnemonics are selected, the telemetry data driver is initialized, broadcasting housekeeping data packets. As spreadsheets are updated with real-time values, the spreadsheets are printed at various time intervals. Via post-analysis, spreadsheet values are compared with scripted telemetry values to ensure data integrity and accurate representation of telemetry Decom/EU values, as well as specified information residing on the table displays.

Success Criteria:

This test is considered successful upon successful build and display of a telemetry table; accurate display of table information, including correct UTC times and EU values for displayed mnemonics.

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

Note: Script is complete when the user gets the following message in the terminal window:

'Successful installation of signal handler'

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   Note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL> **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following event message:

   'String 100 was created.'

6. Invoke the Display Builder tool by entering the following in the ECL directive line:

   ECL> **TOOL Display_Builder**

7. Verify the display builder palette appears on the display screen and contains radio button options for tables/graphs, schematics and display item formats.

8. Build a table display.

   a. Select the **TABLE** option from the Tables & Graph selections.

   b. Drag and drop the palette into the Display Builder Dynamic Page window.

   c. Click on the 'edit' pull down menu and select 'Logical String Management'.

   d. Verify that the Logical String Management page is displayed.

   e. Click the mouse on the 'Add' button.

   f. Verify that 'Realtime Operational Default' is selected.

g. Click the mouse on the ‘OK’ button.

h. Select the following parameters to be used in the table:

(1) SDU_PACKET_SEQ

(2) EDS_CYCLE_COUNT

(3) CDH_BR_STBY_WD2

(4) CDH_BR_STBY_WD3

Note: Reference FUI 2060A on how to select parameters in the Display builder.

9. Save the Table just created.

a. Click the mouse on the file pull down menu.

b. Click the mouse on the ‘Save as…’ option.

c. Enter the following into the selection field at the end of the default directory path:

> **table1**

d. Click the mouse on the ‘OK’ button.

10. Close the Display Builder.

11. Bring the workstation down by entering the following in the window that the station was brought up in:

%: **MyKill**

12. Make the graph display active by entering the following in a terminal window:

%: **cd /fos/test/am1/scripts/setup**

%: **setenv SCRIPT UserStation**

%: **source FosEnvVars**

%: **ProcessPms**

13. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

%: **cd /fos/test/am1/scripts/setup**

%: **source A2_UserStationStartup** *(wait for script completion)*

Note: Script is complete when the user has six planning and scheduling windows and the Control window.

14. Invoke the Event Display window by entering the following in the ECL directive line:

ECL> **TOOL Event_Display**

15. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

    ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG= MIRROR**

    Note: Wait to receive the following event message:

    ‘Successfully connected to string 100’.

16. Display “Table1” by entering the following in the ECL directive line:

    ECL> **P Table1**

17. By viewing the displayed table, verify the following:

    a. All columns on the spreadsheet display are scrollable within the display window.

    b. All parameters are marked as “static” and “No Data”.

18. Invoke the EDOS telemetry driver for the multicast of Standby telemetry packets for processing.

    a. In a terminal window, enter the following:

        %: **cd /fos/test/am1/scripts/setup**

        %: **source A2tlmEnvVars**

        %: **cd /fos/test/am1/bin/sun_sparc_5-4**

        %: **A2tlm**

        Enter tlm type: **am1-standby**

        At the A2tlm prompt enter the following:

            IP address = **224.2.2.45**

            Port number = **7731**

            Number of packets to send: **300**

            Generate sequence errors: **0**

            Packet delay in milliseconds: **4000**

19. By viewing the table display verify the following:

    a. Telemetry values are updated.

    b. UTC times corresponding to spreadsheet mnemonic values are displayed on the left hand side display column, and correspond to at least one mnemonic value.

c. Not more than 300 rows of mnemonic values are displayed for the entire spreadsheet display (elapsed time approximately 5 minutes; i.e. each row corresponds to a specified UTC time of 1.024 seconds).

20. Take a snapshot of the table by entering the following in a terminal window:

    %: **snap**

21. Via offline analysis, verify the following:

    a. Mnemonic values match database definitions for associated raw value (Table TLM2050A-1).

    b. Oldest rows (based on UTC) of mnemonic values are removed as newer rows of values are added.

    c. Parameter No Data flags are removed.

22. Exit the telemetry driver by entering ‘quit’ in the console window where the Telemetry driver was running.

23. Log off the user station(s).

Table TLM2050A-1

	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
	STBY	STBY	STBY	STBY	STBY	STBY	STBY
SDU_SCTIME	sequential	sequential	sequential	sequential	sequential	sequential	sequential
SDU_PACKET_SEQ	sequential	sequential	sequential	sequential	sequential	sequential	sequential
	PKT/ VALUE	PKT/ VALUE	PKT/ VALUE	PKT/ VALUE	PKT/ VALUE	PKT/ VALUE	PKT/ VALUE
CDH_BR_STBY_WD2	0/1	5/11	10/21	15/31	20/41	25/51	30/61
CDH_BR_STBY_WD3	0/2	5/12	10/22	15/32	20/42	25/52	30/62

Test No.: TLM 2080A

Test Title: Real-time Telemetry Archive

Test Configuration: See Appendix G

Test Support:

Telemetry packet driver "A2TLM" supporting multiple APIDs, valid sequence counts, packet length, time stamp and telemetry data values. Previously defined alphanumeric display TLMDecom. Three files, to be input into the A2tlm driver, called A2tlmHKValues, A2tlmHSValues, A2StandbyValues.

Test Description:

This test is designed to verify the ability to archive real-time telemetry including health & safety, standby, and housekeeping packets. A secondary objective is to verify simultaneous archiving of I and Q channel housekeeping packets as well as providing a unique archive file naming convention for incoming data.

The test begins with the startup of RTS and user station default processes. The telemetry driver is initiated and telemetry pages are displayed. Following several minutes of archiving, another telemetry format is broadcast. This continues until all real-time telemetry formats are archived. The test continues with the broadcast of housekeeping telemetry over both the I and Q channels. The archive catalog is displayed and its content viewed in order to verify accurate telemetry file naming conventions.

Success Criteria:

This test is considered successful when all real-time telemetry archive files are generated during archive-enabled periods; Each archive file name is appended with the UTC time of the first generated packet; packets are archived in chronological order.

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_DataServerStartup** *(wait for script completion)*

Note: Script is complete when the user gets the following message in the terminal window:

‘Successful installation of signal handler’

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   Note: Script is complete when the user has five planning and scheduling windows, the Load Manager window and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL> **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following event message:

   ‘String 100 was created.’

6. Connect to a real-time operational string, to accept Health & Safety data, by entering the following in the ECL directive line of the Control window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG= MIRROR**

   Note: Wait to receive the following event message:

   ‘Successfully connected to string 100’.

7. Display the “TLMDecom” alphanumeric page.

   ECL> **P TLMDecom**

8. Invoke the EDOS telemetry driver for the multicast of housekeeping telemetry packets for processing on the I channel.

   a. In a new terminal window, enter the following:

      %: **cd /fos/test/am1/scripts/setup**

%: **source A2tlmEnvVars**

%: **cd /fos/test/am1/bin/sun_sparc_5-4**

%: **A2tlm**

Enter tlm type: **am1-hk**

At the A2tlm prompt enter the following:

IP address = **224.2.2.45**

Port number = **7711**

Number of packets to send: **-1** ;sends infinite number of packets

Generate sequence errors: **0**

Packet delay in milliseconds: **1000**

9. Invoke the EDOS telemetry driver for the multicast of housekeeping telemetry packets for processing on the Q channel.

   a. In a terminal window, enter the following:

%: **cd /fos/test/am1/scripts/setup**

%: **source A2tlmEnvVars**

%: **cd /fos/test/am1/bin/sun_sparc_5-4**

%: **A2tlm**

Enter tlm type: **am1-hk**

At the A2tlm prompt enter the following:

IP address = **224.2.2.45**

Port number = **7712**

Number of packets to send: **-1** ;sends infinite number of packets

Generate sequence errors: **0**

Packet delay in milliseconds: **1000**

10. At ET=5:00 from the start of transmission, stop both of the telemetry drivers by entering CTRL+C in each of the terminal windows.

11. Invoke the EDOS telemetry driver for the multicast of standby telemetry packets for processing on the I channel.

   a. In a terminal window, enter the following:

%: **cd /fos/test/am1/scripts/setup**

%: **source A2tlmEnvVars**

%: **cd /fos/test/am1/bin/sun_sparc_5-4**

%: **A2tlm**

Enter tlm type: **am1-standby**

At the A2tlm prompt enter the following:

IP address = **224.2.2.45**

Port number = **7731**

Number of packets to send: **-1** ;sends infinite number of packets

Generate sequence errors: **0**

Packet delay in milliseconds: **1000**

12. Invoke the EDOS telemetry driver for the multicast of health & safety telemetry packets for processing on the Q channel.

    a. In a terminal window, enter the following:

%: **cd /fos/test/am1/scripts/setup**

%: **source A2tlmEnvVars**

%: **cd /fos/test/am1/bin/sun_sparc_5-4**

%: **A2tlm**

Enter tlm type: **am1-hs**

At the A2tlm prompt enter the following:

IP address = **224.2.2.45**

Port number = **7722**

Number of packets to send: **-1** ;sends infinite number of packets

Generate sequence errors: **0**

Packet delay in milliseconds: **1000**

13. At ET=5:00 from the start of transmission, stop both of the telemetry drivers by entering CTRL+C in each of the terminal windows.

14. Invoke the EDOS telemetry driver for the multicast of standby telemetry packets for processing on the Q channel.

    a. In a terminal window, enter the following:

%: **cd /fos/test/am1/scripts/setup**

%: **source A2tlmEnvVars**

%: **cd /fos/test/am1/bin/sun_sparc_5-4**

%: **A2tlm**

Enter tlm type: **am1-standby**

At the A2tlm prompt enter the following:

IP address = **224.2.2.45**

Port number = **7732**

Number of packets to send: **-1** ;sends infinite number of packets

Generate sequence errors: **0**

Packet delay in milliseconds: **1000**

15. Invoke the EDOS telemetry driver for the multicast of health & safety telemetry packets for processing on the I channel.

    a. In a terminal window, enter the following:

%: **cd /fos/test/am1/scripts/setup**

%: **source A2tlmEnvVars**

%: **cd /fos/test/am1/bin/sun_sparc_5-4**

%: **A2tlm**

Enter tlm type: **am1-hs**

At the A2tlm prompt enter the following:

IP address = **224.2.2.45**

Port number = **7721**

Number of packets to send: **-1** ;sends infinite number of packets

Generate sequence errors: **0**

Packet delay in milliseconds: **1000**

16. At ET=5:00 from the start of transmission, stop both of the telemetry drivers by entering CTRL+C in each of the terminal windows.

17. Verify that all six telemetry streams were archived by entering the following in a console window.

%: **cd /fos/test/am1/tlmarchive**

%: **ls -l**

18. Verify that the following files exist:

   a. AM1199624916.HKI

   b. AM1199624916.HKQ

   c. AM1199624916.HIS

   d. AM1199624916.HSQ

   e. AM1199624916.SBI

   f. AM1199624916.SBQ

   g. **Note**: naming convention for archived telemetry is as follows:

      (1) xxxyyyydddhh.ttc

      (2) xxx - spacecraft

      (3) yyyy - year

      (4) ddd - julian day

      (5) hh - GMT hour

      (6) tt - Telemetry Type

      (7) c - channel (I or Q)

19. Log off the user station(s).

Test No.: ANA 2000A

Test Title: Telemetry History Request & Dataset Generation

Test Configuration: See Appendix G

Test Support:

Previously saved archive files in the archive area that contain mnemonics and times to match user specified analysis requests. A driver "FaDrReaderDriver" used to create an ASCII file in the Carryout format.

Test Description:

This test is designed to verify the ability to build a telemetry history request via the combination of user interface and analysis tool options and automatically generate a dataset of matching archived telemetry data based on selected analysis options (i.e. telemetry parameter names, start/stop time intervals, sampling rates, etc.). The test begins with the initialization of the EOC. The Analysis Request tool is invoked and a historical request is generated, with selected options including request name, start/stop time interval, parameter names, and sampling rates. The request is saved, and then submitted for dataset generation based on the menu options previously submitted. ASCII printouts are generated and analyzed post-test to ensure dataset accuracy and integrity. The last portion of the test deals with the selection of menu options causing error conditions (i.e. mnemonics not matching operational database, attempting to save statistics request without sufficient information, etc.). Following the completion of each invalid request, the request is submitted for dataset generation.

Success Criteria:

This test is considered successful when all of the user interface menus supporting telemetry history include the proper fields (parameter name, data type, start/stop time intervals, and data quality information); It is determined, via post-test analysis, that the telemetry history reports generated match the users request and that the data is not compromised in any way through the retrieval and generation process; All illegal entries, with the exception of mnemonics, will result in an error message and disallow dataset generation; Illegal mnemonics will be left out of the dataset generation.

Procedure:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: ************

   Password: ************

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

Password: ********

%: **cd /fos/test/am1/scripts/setup**

%: **source A2_DataServerStartup** *(wait for script completion)*

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   Note: Script is complete when the user has six planning and scheduling windows and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL> **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: ********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following event message:

   ‘String 100 was created.’

6. Invoke the Analysis Request Builder window.

   a. Click the mouse on the ‘Tools’ button.

   b. Verify that the Tools Dialog window and a list of tools is displayed to the user.

   c. Click the mouse on ‘Analysis_Request_Builder’.

   d. Click the mouse on the ‘OK’ button.

7. Verify that the Analysis Request Builder window is displayed. This window includes the following fields and user interface menus:

   a. Request name

   b. Processing site of data (local or EOC)

   c. Selected Telemetry

   d. Selected Time

e. Product Options

f. Product Formats

g. Data quality

8. Enter into the Request Name field:

   > **Myrequest1**

9. Click the mouse on the ‘EOC Only’ icon to select data to be processed in the EOC.

10. Click the mouse on the ‘All Data’ button in the Data Quality box.

11. Invoke the Analysis Telemetry Selector window.

    a. Click the mouse on the ‘Select Telemetry…’ button.

    b. Verify that the Analysis Telemetry Selector window is displayed. This window includes the following fields and user interface menus:

       (1) Subsystems

       (2) Available Parameters

       (3) Sampling rates

       (4) Statistics interval time

       (5) Selected Parameters

       (6) Algorithms

       (7) Data Filters

    c. Verify that the possible choices in the sampling rate field include:

       (1) All data

       (2) Changes only

       (3) Every Nth sample where N equals a user specified number.

12. Use the selection filter to display a list a possible parameters to be used in the analysis request.

    a. Click the mouse on the ‘Filter…’ button.

    b. Verify that the Selection Filter window is displayed. This window includes the following fields and user interface menus:

       (1) Spacecraft text area

       (2) Instrument text area

       (3) Sample Type text area

(4) Selected subsystem text area

Note: Fields are displayed as the user selects a filter criteria.

c. Click the mouse on 'AM1' in the Spacecraft text area.

d. Click the mouse on 'CDH' in the Instrument/Subsystem text area.

e. Click the mouse on 'B' in the sample type text area.

f. Click the mouse on the 'Select' button.

g. Click the mouse on 'I' in the sample type text area.

h. Click the mouse on the 'Select' button.

i. Click the mouse on 'V' in the sample type text area.

j. Click the mouse on the 'Select' button.

k. Click the mouse on 'N' in the sample type text area.

l. Click the mouse on the 'Select' button.

m. Click the mouse on 'COM' in the Instrument/Subsystem text area.

n. Click the mouse on 'S' in the sample type text area.

o. Click the mouse on the 'Select' button.

p. Click the mouse on 'PMS' in the Instrument/Subsystem text area.

q. Click the mouse on 'T' in the sample type text area.

r. Click the mouse on the 'Select' button.

s. Verify that the following subsystem filters appear in the 'Selected' text area:

(1) AM1_CDH_B

(2) AM1_CDH_I

(3) AM1_CDH_V

(4) AM1_CDH_N

(5) AM1_COM_S

(6) AM1_PMS_T

t. Click the mouse on the 'OK' button.

13. Verify that the filter list is displayed in the Analysis Telemetry Selector window.

14. Select Health & Safety telemetry points to be included in the analysis along with a sampling rates.

a. Click the mouse on the toggle button for AM1_CDH_N.

b. Verify that a list of mnemonics associated with AM1_CDH_N are now displayed in the Available Parameters text area of the Analysis Telemetry Selector window.

c. Click the mouse button on CDH_NR_ACT_NXT_FRSEQ.

d. Select a sampling rate. Click the mouse on the ‘All Data’ icon.

e. Click the mouse button on the ‘Select’ button.

f. Click the mouse on the toggle button for AM1_CDH_N.

g. Verify that the list of mnemonics in the Available Parameters text area are removed.

h. Click the mouse on the toggle button for AM1_COM_S.

i. Verify that a list of mnemonics associated with AM1_COM_S are now displayed in the Available Parameters text area of the Analysis Telemetry Selector window.

j. Click the mouse button on COM_SR_SBT2_WB_AGC.

k. Select a sampling rate. Click the mouse on the ‘All Data’ icon.

l. Click the mouse button on the ‘Select’ button.

m. Click the mouse on the toggle button for AM1_COM_S.

n. Verify that the list of mnemonics in the Available Parameters text area are removed.

o. Click the mouse on the toggle button for AM1_PMS_T.

p. Verify that a list of mnemonics associated with AM1_PMS_T are now displayed in the Available Parameters text area of the Analysis Telemetry Selector window.

q. Click the mouse button on PMS_TR_REA_2.

r. Select a sampling rate. Click the mouse on the ‘All Data’ icon.

s. Click the mouse button on the ‘Select’ button.

t. Click the mouse on the toggle button for AM1_PMS_T.

u. Verify that the list of mnemonics in the Available Parameters text area are removed.

v. Click the mouse on the toggle button for AM1_CDH_B.

w. Verify that a list of mnemonics associated with AM1_CDH_B are now displayed in the Available Parameters text area of the Analysis Telemetry Selector window.

x. Click the mouse button on CDH_BR_PNCODE_RCVD.

y. Select a sampling rate. Click the mouse on the ‘All Data’ icon.

z. Click the mouse button on the ‘Select’ button.

15. Select Standby telemetry points to be included in the analysis along with a sampling rates.

    a. Click the mouse on CDH_BR_PNCODE_RCVD in the Available parameters text field to remove this parameter as being selected.

    b. Click the mouse button on CDH_BR_STBY_WD1.

    c. Select a sampling rate. Click the mouse on the ‘Changes Only’ icon.

    d. Click the mouse button on the ‘Select’ button.

    e. Click the mouse on CDH_BR_STBY_WD1 in the Available parameters text field to remove this parameter as being selected.

    f. Click the mouse button on CDH_BR_STBY_WD2.

    g. Select a sampling rate. Click the mouse on the ‘Changes Only’ icon.

    h. Click the mouse button on the ‘Select’ button.

    i. Click the mouse on CDH_BR_STBY_WD2 in the Available parameters text field to remove this parameter as being selected.

    j. Click the mouse button on CDH_BR_STBY_WD3.

    k. Select a sampling rate. Click the mouse on the ‘Changes Only’ icon.

    l. Click the mouse button on the ‘Select’ button.

    m. Click the mouse on the toggle button for AM1_CDH_B.

    n. Verify that the list of mnemonics in the Available Parameters text area are removed.

16. Select Housekeeping telemetry points to be included in the analysis along with a sampling rates.

    a. Click the mouse on the toggle button for AM1_CDH_I.

    b. Verify that a list of mnemonics associated with AM1_CDH_I are now displayed in the Available Parameters text area of the Analysis Telemetry Selector window.

    c. Click the mouse button on CDH_IR_DAS_BDU_EPCA.

    d. Select a sampling rate. Enter into the ‘Nth sample’ field:

        > **1**

    e. Click the mouse button on the ‘Select’ button.

    f. Click the mouse button on CDH_IR_DAS_BDU_EPCB.

    g. Select a sampling rate. Enter into the ‘Nth sample’ field:

        > **5**

h. Click the mouse button on the ‘Select’ button.

i. Click the mouse on the toggle button for AM1_CDH_I.

j. Verify that the list of mnemonics in the Available Parameters text area are removed.

k. Click the mouse on the toggle button for AM1_CDH_V.

l. Verify that a list of mnemonics associated with AM1_CDH_V are now displayed in the Available Parameters text area of the Analysis Telemetry Selector window.

m. Click the mouse button on CDH_VR_PWRB_A4T_2V.

n. Select a sampling rate. Enter into the ‘Nth sample’ field:

> **10**

o. Click the mouse button on the ‘Select’ button.

p. Click the mouse on CDH_BR_PNCODE_RCVD in the Selected text area.

q. Click the mouse on the ‘Remove’ button.

r. Verify that CDH_BR_PNCODE_RCVD no longer appears in the Selected Parameters text area.

s. Verify that the list of selected mnemonics, along with the sampling rates, is displayed in the Selected Parameters table.

t. Click the mouse on the ‘OK’ button.

17. Verify that the telemetry points and associated sample rates selected match the Selected Telemetry table in the Analysis Request window.

18. Save the analysis request.

a. Click the mouse on the File pull down menu.

b. Verify that a list of options appears. These options include new, open, save, save as, delete, and quit.

c. Click the mouse on ‘Save as…’.

d. Verify that a File Selection window is displayed with a default directory path in the selection field. The default directory path will be /fos/test/am1//data/FUI/requests/.

e. Enter the following at the end of the directory path:

> **Myrequest1**

f. Click the mouse on the ‘OK’ button.

19. Verify that an error message is displayed indicating that the time selection is missing from the request.

20. Click the mouse on the ‘Close’ button in the error dialog box.

21. Invoke the Time Selector window and select a start and stop time for the request.

    a. Click the mouse on the ‘Select Time…’ button.

    b. Verify that the Pair Time Selector window is displayed. This window includes the following fields and user interface menus:

        (1) Type of pair time (Absolute or Relative)

        (2) Start/stop key (Time or Event)

        (3) Specify selection (End Time, End Event, or Duration)

    c. Click the mouse on the ‘Absolute’ icon.

    d. Click the mouse on the ‘Time’ icon.

    e. Click the mouse on the ‘Specify End Time’ icon.

    f. Enter into the stop date field:

        > **1996/323**

    g. Enter into the stop time field:

        > **12:30:00.000**

    h. Enter into the start date field:

        > **1996/323**

    i. Enter into the start time field:

        > **12:00:00.000**

    j. Click the mouse on the ‘OK’ button.

22. Verify that the selected start and stop times match the Selected Times table in the Analysis Request window.

23. Select an output dataset name for the analysis request.

    a. Click the mouse on the output dataset name toggle button.

    b. Enter the following file name:

        > **/fos/test/am1/datasets/Myrequest1**

24. Save the analysis request.

    a. Click the mouse on the File pull down menu.

    b. Verify that a list of options appears. These options include new, open, save, save as, delete, and quit.

c. Click the mouse on ‘Save as…’.

d. Verify that a File Selection window is displayed with a default directory path in the selection field field.

e. Enter the following at the end of the directory path:

> **Myrequest1**

f. Click the mouse on the ‘OK’ button.

g. Verify the dialog box informing the user of the saved file.

h. Click the mouse on the ‘Close’ button in the information dialog box.

25. Generate a dataset for the given options selected.

a. Click the mouse on the ‘OK’ button in the Analysis Request Builder window.

26. Verify that the analysis request was saved.

27. Invoke the Analysis Request Builder window.

a. Click the mouse on the ‘Tools’ button.

b. Verify that the Tools Dialog window and a list of tools is displayed to the user.

c. Click the mouse on ‘Analysis_Request_Builder’.

d. Click the mouse on the ‘OK’ button.

28. Verify that the Analysis Request Builder window is displayed.

a. Click the mouse on the File pull down menu.

b. Verify that a list of options appears. These options include new, open, save, save as…, delete, and quit.

c. Click the mouse on ‘Open’.

d. Verify that the File Selection window is displayed.

e. Click the mouse on ‘Myrequest1’.

f. Click the mouse on the ‘OK’ button.

29. Verify that a request is displayed and that it matches the previously saved request.

30. Edit Myrequest1 with a negative sample rate.

a. Click the mouse on the ‘Select Telemetry…’ button.

b. Enter into the sample rate text field:

> **-1**

c. Click the mouse on the ‘Select’ button.

d. Verify that an error message is displayed to indicate an illegal sample rate.

31. Click the mouse on the ‘Close’ button in the error dialog box.

32. Click the mouse on the ‘Cancel’ button.

33. Change the analysis request and resubmit it.

    a. Click the mouse on the ‘Local Only’ button.

    b. Click the mouse on the ‘OK’ button.

34. Delete the Analysis Request.

    a. Invoke the Analysis Request Builder window.

    b. Click the mouse on the ‘Tools’ button.

    c. Verify that the Tools Dialog window and a list of tools is displayed to the user.

    d. Click the mouse on ‘Analysis_Request_Builder’.

    e. Click the mouse on the ‘OK’ button.

35. Open Myrequest1 that was previously saved.

    a. Click the mouse on the file pull down menu in the Analysis Request window.

    b. Verify that a list of options appears. These options include new, open, save, save as…, delete, and quit.

    c. Click the mouse on ‘Delete’.

    d. Verify that the File Selection window is displayed.

    e. Click the mouse on ‘Myrequest1’.

    f. Click the mouse on the ‘OK’ button.

    g. Verify that a dialog box is displayed verifying that the request should be deleted.

    h. Click the mouse on the ‘yes’ button.

36. Verify that the request is deleted.

    a. Click the mouse on the File pull down menu.

    b. Verify that a list of options appears. These options include new, open, save, save as…, delete, and quit.

    c. Click the mouse on ‘Open’.

    d. Verify that the File Selection window is displayed.

e. Verify that ‘Myrequest1’ does not appear in the list of saved files.

f. Click the mouse on the ‘cancel’ button in the file selection window.

g. Click the mouse on the ‘cancel’ button in the Analysis Request Builder window.

Note: Wait to receive an event message ‘ Analysis request successfully completed.’

37. Verify that a dataset was created by entering the following in a terminal window:

%: **cd /fos/test/am1/datasets**

%: **ls -l**

a. Verify the following files exist:

b. Myrequest1.meta

c. Myrequest1.data

38. Print out an ASCII report of the generated dataset.

a. Invoke a new terminal window at the user workstation and enter the following:

%: **cd /fos/test/am1/scripts/setup**

%: **setenv SCRIPT UserStation**

%: **source FosEnvVars**

%: **cd /fos/test/am1/bin/sun_sparc_5-4**

%: **FaDrReaderDriver**

b. Enter the following at the datset name prompt:

> **/fos/test/am1/datasets/Myrequest1**

c. Enter the following at the prompt to create a carryout file:

> 6

d. Quit the dataset reader driver by entering the following at the prompt:

> **8**

e. Enter the following in a terminal window to print out the file:

%: **lp Myrequest1.out**

39. Via post-test analysis, verify the following:

a. The dataset contains the following information:

(1) raw value

(2) EU converted value (if applicable)

(3) quality status indicator

(4) out of limits indicator (both high and low)

(5) delta limit error indicator

(6) conversion error indicator

(7) invalid mnemonic indicator

b. The number of samples listed for each parameter matches the number of available selections in the time frame.

c. Each mnemonic contains a spacecraft time for each occurrence.

d. The time tag includes year, day, hour, minute, second, and millisecond.

e. The dataset is within the start and stop times selected by the user.

f. All data received is used in the analysis whether good or bad quality.

40. Log off user station(s).

Test No.: ANA 2020A

Test Title: User-Specified Statistics Request & Dataset Generation

Test Configuration: See Appendix G

Test Support:

A driver “FaDrReaderDriver” used to create an ASCII file in the Carryout format.

Test Description:

This test is designed to verify the ability to build a user-specified statistics request via the combination of user interface and analysis tool options and automatically generate a dataset of matching statistics based on archived telemetry data associated with the user request. The test begins with the initialization of the EOC. The Analysis Request tool is invoked and a user-specified statistics request is generated, with selected options including request name, parameter names, start/stop time, and statistics interval times. The request is saved, and then submitted for dataset generation based on the menu options previously submitted. ASCII printouts are generated and analyzed post-test to ensure dataset accuracy and integrity. The last portion of the test deals with the selection of menu options causing error conditions (i.e. attempting statistical computations on data not residing in the archive, etc.). Following the completion of each invalid request, the request is submitted for dataset generation.

Success Criteria:

This test is considered successful when all user interface menus supporting user-specified statistics include the proper fields (request name, parameter names, start/stop times, and statistic interval time; It is determined, via post-test analysis, that the user request matches the associated dataset content; Statistic computation is accurate and based on the start/stop time interval supplied by the user; The number of samples listed for each statistical computation match the number of samples available in the selected start/stop time; Data archive integrity is not compromised during dataset generation; Illegal options disallow dataset generation and result in error messages.

Procedures:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **********

   Password: **********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l *username***

   Password: **********

%: **cd /fos/test/am1/scripts/setup**

%: **source A2_DataServerStartup** *(wait for script completion)*

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   Note: Script is complete when the user has six planning and scheduling windows and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL> **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following event message:

   ‘String 100 was created.’

6. Invoke the Analysis Request Builder window and begin a user-specified statistics request.

   a. Click the mouse on the ‘Tools’ button.

   b. Verify that the Tools Dialog window and a list of tools is displayed to the user.

   c. Click the mouse on ‘Analysis_Request_Builder’.

   d. Click the mouse on the ‘OK’ button.

   e. Verify that the Analysis Request Builder window is displayed. This window includes the following fields and user interface menus:

      (1) Request name

      (2) Processing site of data (local or EOC)

      (3) Select TLM

      (4) Select Time

      (5) Product Options (views and formats)

(6) Data quality

(7) Report Option (Release B function)

f. Enter into the request name field:

> **Myrequest2**

g. Click the mouse on the ‘Local Only’ icon to select data to be processed locally.

h. Verify that the default data quality is Good data only.

i. Invoke the Analysis Telemetry Selector window.

(1) Click the mouse on the ‘Select Telemetry…’ button.

(2) Verify that the Analysis Telemetry Selector window is displayed. This window includes the following fields and user interface menus:

(a) Subsystems

(b) Available Parameters

(c) Sampling rates

(d) Statistics interval time

(e) Selected Parameters

(f) Pre-defined Algorithms (Release B function)

(g) Data Filters

j. Use the selection filter to display a list of possible parameters to be used in the analysis request.

(1) Click the mouse on the ‘Filter…’ button.

(2) Verify that the Selection Filter window is displayed. This window includes the following fields and user interface menus:

(a) Spacecraft text area

(b) Instrument text area

(c) Sample Type text area

(d) Selected subsystem text area

Note: Fields are displayed as the user selects a filter criteria.

(3) Click the mouse on ‘AM1’ in the Spacecraft text area.

(4) Click the mouse on ‘CDH’ in the Instrument text area.

(5) Click the mouse on the ‘B’ in the Telemetry Type text area.

(6) Click the mouse on the ‘Select’ button.

(7) Click the mouse on the ‘I’ in the Telemtry Type text area.

(8) Click the mouse on the ‘Select’ button.

(9) Verify that AM1_CDH_B and AM1_CDH_I are in the Selected text area.

(10) Click the mouse on the ‘OK’ button.

k. Click the mouse on the AM1_CDH_B and the AM1_CDH_I toggle buttons in the Subsystem text field of the Analysis Telemetry Selector window.

l. Verify that a list of mnemonics associated with CDH_B and CDH_I are now displayed in the Available Parameters text area in the Analysis Telemetry Selector window.

m. Select a Health & Safety telemetry point to be included in the analysis along with a statistics interval.

(1) Enter the following into the Find text field:

> **CDH_BR_DCU1_BIT_RES**

(2) Verify that the mnemonic CDH_BR_DCU1_BIT_RES is now highlighted in the available parameters text area.

(3) Enter in the statistics interval box:

> **30**

(4) Click the mouse on the option button in the Statistics interval box and select ‘Secs’.

(5) Click the mouse on the toggle button in the Statistics interval box.

(6) Click the mouse button on the ‘Select’ button.

(7) Click the mouse on CDH_BR_DCU1_BIT_RES in the available parameters text area to de-select this parameter.

n. Select a Standby telemetry point to be included in the analysis along with a statistics interval.

(1) Click the mouse button on CDH_BR_STBY_WD1 in the available parameters text area.

(2) Enter in the statistics interval box:

> **1**

(3) Click the mouse on the option button in the Statistics interval box and select ‘Hrs’.

(4) Click the mouse on the toggle button in the Statistics interval box.

(5) Click the mouse button on the select button.

(6) Click the mouse on CDH_BR_DCU1_BIT_RES in the available parameters text area to de-select this parameter.

o. Select a Housekeeping telemetry point to be included in the analysis along with a statistics interval.

(1) Click the mouse button on CDH_IR_DAS_BDU_EPCA in the available parameters text area.**.**

(2) Enter into the statistics interval text field:

> **1**

(3) Click the mouse on the option button in the Statistics interval box and select ‘minute’.

(4) Click the mouse on the toggle button in the Statistics interval box.

(5) Click the mouse button on the select button.

(6) Verify that the telemetry points along with the associated time intervals, for user-specified statistics, are displayed in the Selected Parameters table.

(7) Click the mouse on CDH_BR_DCU1_BIT_RES in the available parameters text area to de-select this parameter.

p. Click the mouse on the ‘OK’ button.

q. Verify that the telemetry points and associated sample rates selected match the Selected Telemetry table in the Analysis Request Builder window.

r. Click the mouse on the ‘Select Time’ button.

s. Verify that the Pair Time Selector window is displayed. This window includes the following fields and user interface menus:

(1) Type of pair time (Absolute or Relative)

(2) Start/stop key (Time or Event)

(3) Specify selection (End Time, End Event, or Duration)

t. Select a start and stop time to be used for a user-specified statistics generation.

(1) Click the mouse on the ‘Absolute’ icon.

(2) Click the mouse on the ‘Time’ icon.

(3) Click the mouse on the ‘Specify End Time’ icon.

(4) Enter into the start date:

> **1996/325**

(5) Enter into the start time:

> **12:00:00.000**

(6) Enter into the stop date:

> **1996/325**

(7) Enter into the stop time:

> **12:15:00.000**

(8) Click the mouse on the ‘OK’ button.

u. Verify that the selected start and stop times are displayed in the Selected Times table of the Analysis Request window and match the times selected by the user.

v. Enter an output dataset name.

(1) Click the mouse on the Output Dataset Name toggle button.

(2) Enter the following in the Outptut Dataset name field:

> **/fos/test/am1/datatsets/Myrequest2**

7. Save the analysis request.

a. Click the mouse on the File pull down menu.

b. Verify that a list of options appears. These options include new, open…, save, save as…, delete…, and quit.

c. Click the mouse on ‘Save as…’.

d. Verify that a File Selection window is displayed with a default directory path in the Save as field. The default directory path is /fos/test/am1/requests.

e. Enter the following at the end of the directory path:

> **Myrequest2**

f. Click the mouse on the ‘OK’ button.

g. Verify that an information dialog box is displayed indicating that the file was saved.

h. Click the mouse on ‘Close’ in the information dialog box.

8. Generate a dataset for the given options selected.

a. Click the mouse on the ‘OK’ button in the Analysis Request window.

b. Wait for an event message indicating that the analysis request is complete.

9. Print out an ASCII report of the generated data set.

a. Invoke a new terminal window at the user workstation and enter the following:

%: **cd /fos/test/am1/scripts/setup**

%: **setenv SCRIPT UserStation**

%: **source FosEnvVars**

%: **cd /fos/test/am1/bin/sun_sparc_5-4**

%: **FaDrReaderDriver**

b. Enter the following at the datset name prompt:

> **/fos/test/am1/datasets/Myrequest2**

c. Verify that a reader menu is displayed. The reader menu includes the following options:

(1) Display Meta Data

(2) Display Next Time-ordered Param

(3) Display next packet (Release B)

(4) Display Pid-specific data

(5) Go to Beginning of Data File

(6) Convert to Carry-Out

(7) Generate a Stats Report

(8) quit

d. Enter the following at the prompt to create a carryout file:

> **7**

e. Quit the dataset reader driver by entering the following at the prompt:

> **8**

10. Enter the following in a terminal window to print out the file:

%: **cd /fos/test/am1/datatsets**

%: **lp Myrequest2.stats.ascii**

11. Via post-test analysis verify the following:

a. User-specified statistic request, from the analysis request window, matches the associated dataset content.

b. The dataset generated contains the following fields:

(1) minimum value

(2) spacecraft time for the minimum value

(3) maximum value

(4) spacecraft time for the maximum value

(5) mean

(6) standard deviation

(7) number of samples

c. Statistic computations from selected parameters are correct and are based on the time frame allocated by the user.

d. The number of samples listed for each parameter matches the number of available selections, for each parameter, in the time frame given.

e. Spacecraft time associated with the minimum and maximum values is accurate.

f. The time tag includes year, day, hour, minute, second, and millisecond.

g. The data archived is not changed in any way during the generation process.

h. Only good data was retrieved in the analysis request.

i. A message was received indicated that CDH_BR_STBY_WD2 was not in the time frame given.

12. Open the request just saved.

a. Invoke the Analysis Request Builder window.

(1) Click the mouse on the ‘Tools’ button.

(2) Verify that the Tools Dialog window and a list of tools is displayed to the user.

(3) Click the mouse on ‘Analysis_Request_Builder’.

(4) Click the mouse on the ‘OK’ button.

(5) Verify that the Analysis Request Builder window is displayed.

b. Click the mouse on the File pull down menu.

c. Verify that a list of options appears. These options include new, open…, save, save as…, delete…, and quit.

d. Click the mouse on ‘Open…’.

e. Verify that a File Selection window is displayed.

f. Click the mouse on ‘Myrequest2’.

g. Click the mouse on the ‘OK’ button.

13. Verify that the request displayed matches Myrequest2 which was saved earlier.

14. Edit Myrequest2 with a negative sample rate.

a. Click the mouse on the ‘Select Telemetry …’ button.

b. Verify that the Analysis Telemetry Selector window is displayed.

c. Enter into the statistics interval text field:

> **-1**

d. Verify that an error message is displayed to indicate an illegal statistics interval time.

e. Click the mouse on the ‘Cancel’ button.

15. Edit Myrequest2 with a start time greater than the stop time.

a. Click the mouse on the ‘Select Time…’ button.

b. Verify that the Pair Time Selector window is displayed.

c. Click the mouse on the ‘Absolute’ icon.

d. Click the mouse on the ‘Time’ icon.

e. Click the mouse on the ‘Specify End Time’ icon.

f. Enter into the start date:

> **1996/325**

g. Enter into the start time:

> **12:00:00.000**

h. Enter into the stop date:

> **1996/325**

i. Enter into the stop time:

> **11:00:00.000**

j. Click the mouse on the ‘cancel’ button in the Pair Time Selector window.

16. Invoke the Analysis Request Builder window and begin a user-specified statistics request.

a. Click the mouse on the ‘Tools’ button.

b. Verify that the Tools Dialog window and a list of tools is displayed to the user.

c. Click the mouse on ‘Analysis_Request_Builder’.

d. Click the mouse on the ‘OK’ button.

e. Verify that the Analysis Request Builder window is displayed. This window includes the following fields and user interface menus:

f. Enter into the request name field:

> **Myrequest3**

g. Click the mouse on the ‘Local Only’ icon to select data to be processed locally.

h. Invoke the Analysis Telemetry Selector window.

i. Click the mouse on the ‘Select Telemetry…’ button.

j. Verify that the Analysis Telemetry Selector window is displayed. This window includes the following fields and user interface menus:

k. Use the selection filter to display a list of possible parameters to be used in the analysis request.

   (1) Click the mouse on the ‘Filter…’ button.

   (2) Verify that the Selection Filter window is displayed. This window includes the following fields and user interface menus:

   Note: Fields are displayed as the user selects a filter criteria.

   (3) Click the mouse on ‘AM1’ in the Spacecraft text area.

   (4) Click the mouse on ‘EDS’ in the Instrument text area.

   (5) Click the mouse on the ‘Select’ button.

   (6) Click the mouse on the ‘OK’ button.

l. Click the mouse on the AM1_SDU toggle button in the Subsystem text field of the Analysis Telemetry Selector window.

m. Verify that a list of mnemonics associated with AM1_SDU are now displayed in the Available Parameters text area in the Analysis Telemetry Selector window.

n. Select a telemetry point to be included in the analysis.

   (1) Click the mouse button on SDU_PACKET_SEQ in the available parameters text area.

o. Click the mouse button on the select button.

p. Click the mouse on the ‘Select Time’ button.

q. Verify that the Pair Time Selector window is displayed. This window includes the following fields and user interface menus:

r. Select a start and stop time to be used for a user-specified statistics generation.

   (1) Click the mouse on the ‘Absolute’ icon.

(2) Click the mouse on the ‘Time’ icon.

(3) Click the mouse on the ‘Specify End Time’ icon.

(4) Enter into the start date:

> **1996/325**

(5) Enter into the start time:

> **12:00:00.000**

(6) Enter into the stop date:

> **1996/325**

(7) Enter into the stop time:

> **12:00:01.000**

(8) Click the mouse on the ‘OK’ button.

s. Verify that the selected start and stop times are displayed in the Selected Times table of the Analysis Request window and match the times selected by the user.

t. Enter an output dataset name.

(1) Click the mouse on the Output Dataset Name toggle button.

(2) Enter the following in the Outptut Dataset name field:

> **/fos/test/am1/datatsets/Myrequest3**

17. Save the analysis request.

a. Click the mouse on the File pull down menu.

b. Verify that a list of options appears. These options include new, open…, save, save as…, delete…, and quit.

c. Click the mouse on ‘Save as…’.

d. Verify that a File Selection window is displayed with a default directory path in the Save as field. The default directory path is /fos/test/am1/requests.

e. Enter the following at the end of the directory path:

> **Myrequest3**

f. Click the mouse on the ‘OK’ button.

g. Verify that an information dialog box is displayed indicating that the file was saved.

h. Click the mouse on ‘Close’ in the information dialog box.

18. Generate a dataset for the given options selected.

a. Click the mouse on the ‘OK’ button in the Analysis Request window.

b. Wait for an event message indicating that the analysis request is complete.

c. Verify, via the Event Display, that the Analysis Request is completed with no errors.

19. Log off user station(s).

Test No.: ANA 2070A

Test Title: Analysis Request Management

Test Configuration: See Appendix G

Test Support:

Ten previously saved analysis requests. A driver “FaDrReaderDriver” used to create an ASCII report of the user-specified statistics.

Test Description:

This test is designed to verify the ability to manage all requests for data analysis. This includes simultaneous processing of multiple requests as well as a queue of requests waiting to be processed. This test will also verify selection filter capabilities and user-specified statistics report content. The test begins with the initialization of the EOC. The Analysis Request tool is invoked and a historical request is generated, with selected options including request name, start/stop time interval, parameter names, and sampling rates. During the mnemonic selection portion of the request, all selection filter capabilities are verified. Several other analysis requests are generated in order to fill the queue. The queue is checked to ensure the accuracy of the status of each request submitted. At least one of the requests will be a user-specified statistics request. After this request has completed, the ASCII report file is generated and checked. This file should be checked for correct header information as well as data accuracy.

Success Criteria:

This test is considered successful the queue is able to hold 10 requests; Each request displays the request name, a status, and percentage complete; When selecting a parameter for analysis, the user is able to filter according to spacecraft IDs, subsystems, instruments, and ground systems; One or more instruments and spacecraft subsystems may be selected for each spacecraft as a filter criteria; The user is provided with the capability to generate an ASCII report from a user-specified statistics request; The statistics report contains header information consisting of a date and time of the report, a spacecraft start and stop time, and an interval type for the statistic; For each parameter, the statistics report contains a mnemonic name, minimum value, maximum value, mean value, standard deviation, number of samples, and spacecraft time for the minimum and maximum values.

Procedure:

1. Log onto a EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: ********

   Password: ********

2. From a new terminal window, rlogin to the Data Server, change directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

%: **rlogin foseoc7 -l *username***

Password: **********

%: **cd /fos/test/am1/scripts/setup**

%: **source A2_DataServerStartup** *(wait for script completion)*

3. From a new terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   Note: Script is complete when the user has six planning and scheduling windows and the Control window.

4. Invoke the Event Display window by entering the following in the ECL directive line:

   ECL> **TOOL Event_Display**

5. From a new terminal window, rlogin to the real-time server, change directory to /fos/test/am1/scripts/setup, and invoke the Real-time Server startup script.

   %: **rlogin foseoc6 -l *username***

   Password: **********

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealtimeServerStartup** *(wait for script completion)*

   Note: Script is complete when the user gets the following event message:

   ‘String 100 was created.’

6. Invoke the Analysis Request Builder window and open request1 that was previously saved in the analysis request directory.

   a. Click the mouse on the ‘Tools’ button in the Control window.

   b. Verify that the Tools Dialog window and a list of tools is displayed to the user.

   c. Click the mouse on ‘Analysis_Request_Builder’.

   d. Click the mouse on the ‘OK’ button.

   e. Verify that the Analysis Request Builder window is displayed. This window includes the following fields and user interface menus:

      (1) Request name

      (2) Processing site of data (local or EOC)

(3) Selected Telemetry

(4) Selected Times

(5) Product Views

(6) Product Formats

(7) Data quality

f. Click the mouse on the File pull down menu.

g. Click the mouse on ‘Open’.

h. Verify that the File Selection window is displayed.

i. Click the mouse on ‘request1’.

j. Click the mouse on the ‘OK’ button.

7. Select new telemetry points to be used in the request.

a. Invoke the Analysis Telemetry Selector window.

b. Click the mouse on the ‘Select Telemetry…’ button.

c. Verify that the Analysis Telemetry Selector window is displayed.

c. Use the Selection Filter window to select parameters.

d. Click the mouse on the ‘Filter…’ button.

e. Verify that the Selection Filter window is displayed. This window includes filter sections to display mnemonics according to spacecraft, subsystems, instruments, and telemetry sample types.

Note: Fields are displayed as the user selects a filter criteria.

f. Click the mouse on ‘AM1’ in the Spacecraft text area.

g. Verify that a list of ground systems, spacecraft subsystems, and instruments is displayed in the Instrument text field. This list includes the following:

AST	EPS	SDU
CEA	GCM	SMS
CEF	GNC	TCS
CDH	MIS	SYS
COM	MOD	
EAS	MOP	
EDS	PMS	

h. Click the mouse on ‘CDH’ in the Instrument text area.

i. Verify that a list of telemetry sample types is displayed in the Sample Type text field. This list includes a subset of the following:

(1) I - current

(2) V - voltage

(3) T - temperature

(4) B - bi-level status

(5) P - power

(6) C - configuration information

(7) S - status information

(8) N - numeric counter

j. Click the mouse on ‘B’ in the Sample Type text area.

k. Click the mouse on the ‘Select’ button.

l. Verify that the subsystem AM1_CDH_B is displayed in the Selected text area.

m. Click the mouse on ‘AST’ in the Instrument text area.

n. Click the mouse on the ‘Select’ button.

o. Verify that the subsystem AM1_AST is displayed in the Selected text area.

p. Click the mouse on ‘EDS’ in the Instrument text area.

q. Click the mouse on the ‘Select’ button.

r. Verify that the subsystem AM1_EDS is displayed in the Selected text area.

s. Click the mouse on the ‘OK’ button.

8. Verify that the selected subsystems are displayed in the Subsystems text area of the Analysis Telemetry Selector window include:

   a. AM1_CDH_B

   b. AM1_AST

   c. AM1_EDS

9. Click the mouse on each of the toggle buttons next to the Subsystems.

10. Verify that a list of mnemonics associated with these subsystems is displayed in the Available Parameters text area.

11. Filter more than one instrument and spacecraft subsystem for a particular spacecraft.

    a. Click the mouse on the ‘Filter..’ button.

b. Verify that the Selection Filter window is displayed.

c. Click the mouse on ‘AM1’.

d. Verify that a list of ground systems, spacecraft subsystems, and instruments is displayed in the Instrument text area.

e. Click the mouse on ‘CEA’.

f. Verify that a list of telemetry sample types is displayed in the Sample Type text area.

g. Click the mouse on the ‘Select’ button.

h. Verify that the subsystem AM1_CEA is displayed in the Selected text area.

i. Click the mouse on ‘TCS’ in the Instrument text area.

j. Click the mouse on the ‘Select’ button.

k. Verify that the subsystem AM1_TCS is displayed in the Selected text area.

l. Click the mouse on the subsystem AM1_EDS in the Selected text area.

m. Click the mouse on the ‘Remove’ button.

n. Verify that the subsystem AM1_EDS is not in the Selected text area list.

o. Click the mouse on the ‘OK’ button.

12. Verify that the selected subsystems displayed in the Subsystems text area include:

    a. AM1_CDH_B

    b. AM1_AST

    c. AM1_CEA

    d. AM1_TCS

13. Click the mouse on the toggle button next to AM1_TCS in the subsystem text field.

14. Verify that a list of mnemonics associated with these subsystems is displayed in the Available Parameters text area.

15. Click the mouse on the ‘OK’ button in the Analysis Telemetry Selector window.

    Note: No changes will be made to request1. The previous steps verify filter capabilities.

16. Submit request1 for analysis and dataset generation.

    a. Click the mouse on the ‘OK’ button in the Analysis Request window.

17. Invoke the Analysis Request Builder window and open request2 that was previously saved in the analysis request directory.

a. Click the mouse on the ‘Tools’ button in the Control window.

b. Verify that the Tools Dialog window and a list of tools is displayed to the user.

c. Click the mouse on ‘Analysis_Request_Builder’.

d. Click the mouse on the ‘OK’ button.

e. Verify that the Analysis Request Builder window is displayed.

f. Click the mouse on the File pull down menu.

g. Click the mouse on ‘Open’.

h. Verify that the File Selection window is displayed.

i. Click the mouse on ‘request2’.

j. Click the mouse on the ‘OK’ button.

18. Submit request2 for analysis and dataset generation.

    a. Click the mouse on the ‘OK’ button in the Analysis Request window.

19. Invoke the Analysis Request Builder window and open request3 that was previously saved in the analysis request directory.

    a. Click the mouse on the ‘Tools’ button in the Control window.

    b. Verify that the Tools Dialog window and a list of tools is displayed to the user.

    c. Click the mouse on ‘Analysis_Request_Builder’.

    d. Click the mouse on the ‘OK’ button.

    e. Verify that the Analysis Request Builder window is displayed.

    f. Click the mouse on the File pull down menu.

    g. Click the mouse on ‘Open’.

    h. Verify that the File Selection window is displayed.

    i. Click the mouse on ‘request3’.

    j. Click the mouse on the ‘OK’ button.

20. Submit request3 for analysis and dataset generation.

    a. Click the mouse on the ‘OK’ button in the Analysis Request window.

21. Invoke the Analysis Request Builder window and open request4 that was previously saved in the analysis request directory.

    a. Click the mouse on the ‘Tools’ button in the Control window.

b. Verify that the Tools Dialog window and a list of tools is displayed to the user.

c. Click the mouse on 'Analysis_Request_Builder'.

d. Click the mouse on the 'OK' button.

e. Verify that the Analysis Request Builder window is displayed.

f. Click the mouse on the File pull down menu.

g. Click the mouse on 'Open'.

h. Verify that the File Selection window is displayed.

i. Click the mouse on 'request4'.

j. Click the mouse on the 'OK' button.

22. Submit request4 for analysis and dataset generation.

    a. Click the mouse on the 'OK' button in the Analysis Request window.

23. Invoke the Analysis Request Builder window and open request5 that was previously saved in the analysis request directory.

    a. Click the mouse on the 'Tools' button in the Control window.

    b. Verify that the Tools Dialog window and a list of tools is displayed to the user.

    c. Click the mouse on 'Analysis_Request_Builder'.

    d. Click the mouse on the 'OK' button.

    e. Verify that the Analysis Request Builder window is displayed.

    f. Click the mouse on the File pull down menu.

    g. Click the mouse on 'Open'.

    h. Verify that the File Selection window is displayed.

    i. Click the mouse on 'request5'.

    j. Click the mouse on the 'OK' button.

24. Submit request5 for analysis and dataset generation.

    a. Click the mouse on the 'OK' button in the Analysis Request window.

25. Invoke the Analysis Request Builder window and open request6 that was previously saved in the analysis request directory.

    a. Click the mouse on the 'Tools' button in the Control window.

    b. Verify that the Tools Dialog window and a list of tools is displayed to the user.

c. Click the mouse on ‘Analysis_Request_Builder’.

d. Click the mouse on the ‘OK’ button.

e. Verify that the Analysis Request Builder window is displayed.

f. Click the mouse on the File pull down menu.

g. Click the mouse on ‘Open’.

h. Verify that the File Selection window is displayed.

i. Click the mouse on ‘request6’.

j. Click the mouse on the ‘OK’ button.

26. Submit request6 for analysis and dataset generation.

    a. Click the mouse on the ‘OK’ button in the Analysis Request window.

27. Invoke the Analysis Request Builder window and open request7 that was previously saved in the analysis request directory.

    a. Click the mouse on the ‘Tools’ button in the Control window.

    b. Verify that the Tools Dialog window and a list of tools is displayed to the user.

    c. Click the mouse on ‘Analysis_Request_Builder’.

    d. Click the mouse on the ‘OK’ button.

    e. Verify that the Analysis Request Builder window is displayed.

    f. Click the mouse on the File pull down menu.

    g. Click the mouse on ‘Open’.

    h. Verify that the File Selection window is displayed.

    i. Click the mouse on ‘request7’.

    j. Click the mouse on the ‘OK’ button.

28. Submit request7 for analysis and dataset generation.

    a. Click the mouse on the ‘OK’ button in the Analysis Request window.

29. Invoke the Analysis Request Builder window and open request8 that was previously saved in the analysis request directory.

    a. Click the mouse on the ‘Tools’ button in the Control window.

    b. Verify that the Tools Dialog window and a list of tools is displayed to the user.

    c. Click the mouse on ‘Analysis_Request_Builder’.

d. Click the mouse on the ‘OK’ button.

e. Verify that the Analysis Request Builder window is displayed.

f. Click the mouse on the File pull down menu.

g. Click the mouse on ‘Open’.

h. Verify that the File Selection window is displayed.

i. Click the mouse on ‘request8’.

j. Click the mouse on the ‘OK’ button.

30. Submit request8 for analysis and dataset generation.

    a. Click the mouse on the ‘OK’ button in the Analysis Request window.

31. Invoke the Analysis Request Builder window and open request9 that was previously saved in the analysis request directory.

    a. Click the mouse on the ‘Tools’ button in the Control window.

    b. Verify that the Tools Dialog window and a list of tools is displayed to the user.

    c. Click the mouse on ‘Analysis_Request_Builder’.

    d. Click the mouse on the ‘OK’ button.

    e. Verify that the Analysis Request Builder window is displayed.

    f. Click the mouse on the File pull down menu.

    g. Click the mouse on ‘Open’.

    h. Verify that the File Selection window is displayed.

    i. Click the mouse on ‘request9’.

    j. Click the mouse on the ‘OK’ button.

32. Submit request9 for analysis and dataset generation.

    a. Click the mouse on the ‘OK’ button in the Analysis Request window.

33. Invoke the Analysis Request Builder window and open request10 that was previously saved in the analysis request directory.

    a. Click the mouse on the ‘Tools’ button in the Control window.

    b. Verify that the Tools Dialog window and a list of tools is displayed to the user.

    c. Click the mouse on ‘Analysis_Request_Builder’.

    d. Click the mouse on the ‘OK’ button.

e. Verify that the Analysis Request Builder window is displayed.

f. Click the mouse on the File pull down menu.

g. Click the mouse on ‘Open’.

h. Verify that the File Selection window is displayed.

i. Click the mouse on ‘request10’.

j. Click the mouse on the ‘OK’ button.

34. Submit request10 for analysis and dataset generation.

a. Click the mouse on the ‘OK’ button in the Analysis Request window.

35. View the analysis request queue via Sybase by entering the following into a terminal window:

%: **isql -Ufos_dba -Pfos_dba**

> **use am1_fos_ops**

> **go**

> **select * from fos_request_queue**

> **go**

36. Verify the following:

a. There are 10 requests contained in the request queue.

b. The request queue displays an estimated percentage complete for each request.

c. The request queue displays a status for each request. The status will be one of the following:

(1) Request submitted

(2) Request currently being processed

(3) Request complete

d. Exit Sybase by entering the following:

> **exit**

37. Print out an ASCII report from the generated user-specified statistics dataset.

a. Invoke a new terminal window at the user workstation and enter the following:

%: **cd /fos/test/am1/scripts/setup**

%: **setenv SCRIPT UserStation**

%: **source FosEnvVars**

%: **cd /fos/test/am1/bin/sun_sparc_5-4**

%: **FaDrReaderDriver**

b. Enter the following at the datset name prompt:

> **/fos/test/am1/datasets/request1**

c. Enter the following at the prompt to create an ASCII user-specified statistics report file:

> **7**

d. Quit the dataset reader driver by entering the following at the prompt:

> **8**

e. Enter the following in a terminal window to print out the file:

%: **cd /fos/test/am1/datasets**

%: **lp request1.ascii**

38. Via post-test analysis verify the following:

a. User-specified statistic request, from the analysis request window, matches the associated dataset content.

b. The report contains header information consisting of the following:

(1) Date and time of the report

(2) The starting spacecraft time of the data

(3) The ending spacecraft time of the data

(4) The interval type of the statistic

c. Each telemetry point has an associated mnemonic name in the report.

d. The following information is contained in the report:

(1) Minimum value within each interval time

(2) Spacecraft time for each minimum value

(3) Maximum value within each interval time

(4) Spacecraft time for each maximum value

(5) Mean value for each interval time

(6) Standard deviation for each interval time

(7) Number of samples occurring within each interval time

e. The number of samples listed for each parameter matches the number of available selections in the time frame given.

f. Statistic computations from selected parameters are correct and are based on the time frame allocated by the user.

g. Spacecraft time associated with the minimum and maximum values is accurate.

39. Log off user station(s).

Test No.: CON 2000A

Test Title: Post-Patch Confidence Test

Test Configuration: See Appendix G

Test Support: Previously defined alphanumeric displays for telemetry: Header and TLMDecom display pages

Telemetry packet driver to transmit health & safety telemetry data stream

Test Description:

This test is designed to verify critical FOS functionality after system re-delivery or after a patch has been incorporated into the FOS test environment. The test provides a reasonable level of confidence that the re-delivery or patch has not adversely impacted FOS functionality. Fundamental planning & scheduling, command, telemetry, and analysis services are confirmed prior to executing the more detailed FOS thread test procedures developed for each subsystem.

Success Criteria:

This test is successful when the following functionality is demonstrated:

a. Telemetry Processing

b. Activity Definition

c. Activity Scheduling

d. DAS / ATC / Ground Schedule Generation

e. Ground Script Execution with Manual Real-Time Commanding

f. Analysis Request

Procedures:

System Startup Subprocedure:

1. Log onto an EOC workstation under one of the fostest accounts (fostest1, fostest2, fostest3, fostest4):

   Username: **fostestX**, where X = 1, 2, 3, or 4

   Password: **********

2. From a new Terminal window, rlogin to the Data Server, change the directory to /fos/test/am1/scripts/setup, and invoke the Data Server startup script.

   %: **rlogin foseoc7 -l fostestX**, where X = 1, 2, 3, or 4

   Password: *********

   %: **cd /fos/test/am1/scripts/setup**

%: **source A2_DataServerStartup** *(wait for script completion)*

Note: Script is complete when the following message appears repeatedly in the Terminal window:

"Waiting for activity"

3. From a new Terminal window, change directory to /fos/test/am1/scripts/setup. Invoke the User Station startup script.

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_UserStationStartup** *(wait for script completion)*

   Note: Script is complete when five Planning and Scheduling windows, the Load Manager window, and the Control Window are displayed. Iconify the Planning and Scheduling and Load Manager windows.

4. Invoke the Event Display by entering the following in the ECL directive line of the Control Window.

   ECL> **TOOL Event_Display**

5. From a new Terminal window, rlogin to the Real Time Server, change the directory to /fos/test/am1/scripts/setup, and invoke the Real Time Server startup script.

   %: **rlogin foseoc6 -l fostestX**, where X = 1, 2, 3, or 4

   Password: *******

   %: **cd /fos/test/am1/scripts/setup**

   %: **source A2_RealTimeServerStartup** *(wait for script completion)*

   Note: Script is complete when the following event message appears in the Events Display window on the User Station:

   "String 100 was created."

Telemetry Processing Subprocedure:

6. Connect to a real-time operational string, to accept health & safety data, by entering the following in the ECL directive line of the Control Window:

   ECL> **STRING CONNECT STRING=100 TLMTYPE=HEALTH CONFIG= MIRROR**

   a. Wait for the event message "Successfully connected to string 100" to appear.

   Note the day-of-the-year (001-366) associated with this event message. This day will be used in other subprocedures of this test.

7. At the user station, bring up the EDU Header alphanumeric page, which displays telemetry header field values, by entering the following in the ECL directive line of the Control Window:

   ECL> **P Header**

   a. Verify the Header window appears at the user station and contains the following fields:

      (1) Mnemonic descriptors

      (2) Static flags for all descriptors

      (3) NODATA flags for all descriptors

      (4) Spacecraft time (SDU_SCTIME)

      (5) Data source (spacecraft ID) (EDS_SCID)

      (6) Quality indicator (EDS_QUALITY)

      (7) APID number (SDU_PCKT_APID)

      (8) Packet sequence count (SDU_PACKET_SEQ)

      (9) Packet length count (SDU_PCKT_LENGTH)

      (10) CCSDS Version (SDU_CCSDS_VER)

8. At the user station, bring up the "TLMDecom" alphanumeric page, which displays housekeeping, health & safety, and standby mnemonic values, by entering the following in the ECL directive line of the Control Window:

   ECL> **P TLMDecom**

   a. Verify the TLMDecom display appears at the user station and contains the following:

      (1) Mnemonic descriptors

      (2) Static flags for all descriptors

      (3) NODATA flags for all descriptors

9. Invoke the simulated EDOS telemetry driver for the multicast of health & safety telemetry packets for processing.

   a. In a console window, enter the following:

      %: **cd /fos/test/am1/scripts/setup**

      %: **source A2tlmEnvVars**

      %: **cd /fos/test/am1/bin/sun_sparc_5-4**

      %: **A2tlm**

Enter tlm type: **am1-hs**

At the A2tlm prompt enter the following:

IP address = **224.2.2.45**

Port number = **7721**

Number of packets to send: **32**

Generate sequence errors: **0**

Packet delay in milliseconds: **2000**

Note the telemetry start date and time for the Analysis Request subprocedure later in this test

10. Verify that each mnemonic's "NODATA" and "STATIC" flag indicators no longer appear on any of the display pages and that the mnemonics are marked as active (except for mnemonics that are not defined as health & safety mnemonics).

11. Verify that mnemonics that are not defined as health & safety mnemonics are still flagged as static and the NODATA indicator is still apparent.

12. After the telemetry driver has stopped, verify that each mnemonic's "NODATA" and "STATIC" flag indicators appear (within several minutes) at each alphanumeric telemetry display.

    Note the telemetry stop date and time for the Analysis Request subprocedure later in this test

Activity Definition Subprocedure:

13. Restore the iconified Activity Definer Tool.

14. Using the mouse, click on the Activity Definer '**File**' menu and select the '**New**' option to define a new activity. Verify the user receives a prompt to enter the name of the new activity and the resource that the activity is being defined against.

15. Enter the activity name and resource.

    a. New Activity Name: **Con_Activity_XXX**, where XXX is the current day-of-the-year noted earlier in the **Telemetry Processing** subprocedure

    b. Resource Name: **AM1 ASTER** (selectable from menu using mouse)

    c. Click '**OK**'

    d. Verify on the Activity Definer display window that the Activity Name updated with 'Con_Activity_XXX' and the Resource Name updated with 'AM1 ASTER'.

16. Using the mouse, click on the Activity Definer '**Edit**' menu and select the '**Commands'** option to access available ASTER commands for incorporation into the 'Con_Activity_XXX' activity.

    a. Verify that a Commands window is displayed at the user workstation that provides a list of available commands for incorporation.

17. Define ATC commands for the activity Con-Activity_XXX using the Commands window.

    a. Click on **ATC Command** and select the following ASTER ATC Commands to be incorporated into the Con_Activity_XXX activity. Associate an off-set time with each command.

        (1) **AST_TURN_ON_C_TDP** START **+00:01:00** *(Select 'Add' button)*

        (2) **AST_TURN_OFF_C_TDP** START **+00:02:00** *(Select 'Add' button)*

    b. Select the 'Apply' Button.

    c. Verify that these commands and associated off-set times are included in the 'Selected Commands' list.

18. Define Ground commands for the activity Con-Activity_XXX using the Commands window.

    a. Click on **Ground Command** and select the following ASTER Ground Commands to be incorporated into the Con_Activity_XXX activity. Associate an off-set time with each command.

        (1) **AST_TURN_ON_C_TDP** STOP **-00:04:00** *(Select 'Add' button)*

        (2) **AST_TURN_OFF_C_TDP** STOP **-00:03:00** *(Select 'Add' button)*

    b. Select the 'Apply' Button.

    c. Verify that these commands and associated off-set times are included in the 'Selected Commands' list.

19. Insert a "WAIT" directive into the activity Con-Activity_XXX using the Activity Definer window.

    a. Under Edit, click "ECL directives".

    b. In the ECS Command Language Editor box, enter **WAIT**.

    c. Enter an off-set Start time of **+ 00:01:30**

    d. Select "Add", select "Apply", and select "OK".

20. From the Commands window select the 'OK' option and verify that the four ASTER commands, the WAIT directive, and their associated off-set times are merged sequentially into the Activity Definer window under 'Items'.

21. From the Activity Definer window select the ‘Activity Description’ box. Enter a description of the activity:

    “This activity will be scheduled, built in an ATC, and uplinked”

22. From the Activity Definer ‘Edit’ menu, select the ‘Scheduling Info’ option. Verify that the Activity Scheduling Information window is displayed at the user workstation.

23. Select ‘Start Time’ and ‘Stop Time’ for the activity. Enter the GMT start date yyyy/ddd and time hh:mm:ss. Enter the stop date yyyy/ddd and time hh:mm:ss.

START	**1996/200**	**01:00:00**
STOP	**1996/200**	**03:00:00**

    a. Invoke ‘Apply” and verify the start and stop times are accepted, i.e., there are no error messages.

    b. Select ‘OK’ to apply the scheduling information to the activity.

    c. From the Activity Definer ‘File’ menu, select the ‘Save’ option to save Con_Activity_XXX as an AM1 ASTER Activity.

    d. From the Activity Definer ‘File’ menu, select the ‘Close’ option to close the Con_Activity_XXX activity.

Activity Scheduling Subprocedure:

24. Restore the iconified General Scheduler window and change the resource to schedule against **AM1 ASTER.**

25. From the General Scheduler ‘Filter’ menu, select the ‘Activities’ option to display the activities available for scheduling against the AM1 ASTER resource.

    a. Verify that activity ‘Con_Activity_XXX’ is available for scheduling.

    b. In the Open Plan box, select the Master Plan as the plan that the activities are to be scheduled against.

26. Select the ‘Con_Activity_XXX’ activity for scheduling against the Master Plan.

27. From the General Scheduler ‘Action’ menu select ‘Impact’ option so that scheduling of Con_Activity_XXX impacts the Master Plan.

28. Select ‘Start Time’ and ‘Stop Time’ as the options for scheduling the activity.

    a. Start Time: **1996/XXX 02:00:00**, where XXX is the current day-of-the-year.

    b. Stop Time: **1996/XXX 02:10:00**, where XXX is the current day-of-the-year.

29. From the General Scheduler ‘Action’ menu select the ‘Schedule’ option to schedule the activity Con_Activity_XXX. Select the master plan as the plan to schedule against.

30. Verify that the activity appears on the Timeline master plan under the resource, dates and times selected using the General Scheduler.

    a. Select “Open” from the EOS timeline file pull-down menu.

    b. Select the master plan.

    c. Start time: **1996/XXX 01:00:00**, where XXX is the current day-of-the-year.

    d. Stop time: **1996/XXX 03:00:00**, where XXX is the current day-of-the-year.

    e. Click “OK” and wait for the EOS Timeline window to close.

    f. Select Resources from the User Setup pull-down menu. Click “AM1-ASTER”, click “ADD”, click “OK”.

DAS / ATC / Ground Schedule Generation Subprocedure:

31. Restore the iconified Load Generator display, select DAS start and stop times corresponding to a period on the timeline that includes scheduled activity ‘Con_Activity_XXX’.

    a. Start time: **1996/XXX 02:00:00**, where XXX is the current day-of-the-year.

    b. Stop time: **1996/XXX 02:10:00**, where XXX is the current day-of-the-year.

32. Set the uplink start and stop times to be prior to the start of the DAS.

    a. Start time: **1996/YYY 00:15:00**, where YYY is one day prior to XXX.

    b. Stop time: **1996/YYY 00:30:00**, where YYY is one day prior to XXX.

33. Set the DAS ID equal to the current day-of-the-year (XXX).

34. Select the ‘OK’ push button to add the DAS product to the load queue and to send an ATC load generation request to the CMS Schedule Controller.

    a. Verify that the ‘Generate’ request invokes the transfer of the DAS to CMS for expansion and ATC load generation.

    b. Verify that there is a ‘processing’ status in the DataServer Terminal window.

35. At the completion of the DAS expansion and ATC load generation, verify that the there is a ‘load complete’ event message from CMS and a ‘completed’ status from PAS in the DataServer Terminal window.

    a. Verify ‘Detail Activity List’ information in the DataServer Terminal window.

36. Verify event messages are output from DMS FileMetaData process confirming the storage of the ATC load contents, load image, load uplink, and load report.

    a. Verify that the ATC load contents, load image, load uplink, and load report have been generated and stored.

        (1) The following files are stored in the directory /fos/test/am1/loads

(a) AM1_ATC_96_XXX_a.cnt (load contents)

(b) AM1_ATC_96_XXX_a_1_OF_1.img (load image)

(c) AM1_ATC_96_XXX_a_1_OF_1.upl (load uplink)

(2) The following file is stored in the directory /fos/test/am1/reports

(a) AM1_ATC_96_XXX_a.rpt (load report)

b. Verify that the commands are included in the Integrated Report:

/fos/test/am1/groundsched/report

Ground Script Execution with Manual Real-Time Commanding Subprocedure:

37. Assign Spacecraft Activity Controller privilege.

a. Enter the following in the ECL directive line of the Control Window:

ECL> **TAKE COMMAND STRING=100**

b. Verify message via event display indicating command privileges have been assigned to the proper userid and workstation ID.

38. Activate the Command Control window by entering the following in the ECL directive line of the Control Window:.

ECL> **TOOL Command_Control**

a. A dialog box will appear allowing user to enter String id=100 and Spacecraft ID=AM1.

b. Verify Command Control window is displayed with all five user interface (pull-down) menus; File, Edit, Config, Utility, and Help.

39. Select a ground script for execution. Bring up the time selector box **and enter times used to generate the DAS**:

a. Using the "File" menu from Command Control window select “Open”.

b. Enter the DAS start time of the ground script selected for execution.

> **1996/XXX 02:00:00.000**

c. Enter the DAS stop time of the ground script selected for execution.

> **1996/XXX 02:10:00.000**

Click ‘OK’

d. The contents of the ground script will be displayed in the text area of the Command Control window.

e. Verify the following items are properly displayed in the Command Control window.

(1) ground script start time

(2) ground script stop time

(3) spacecraft id associated with ground script

(4) ground script status - suspended (default)

(5) ground script processing mode - auto (default)

(6) current bias time

(7) verification flags (Prerequisite State Check (PSC)=OFF

(a) Command (CV)=OFF, and Telemetry (TV)=OFF)

(b) (Turn to OFF if necessary using Config pull-down menu)

f. Examine the ground script to ensure the commands/directives displayed represent the time period specified.

g. Place Command Control in the auto mode, if necessary, using the Config pull-down menu.

40. Insert a real-time command into the ground script.

a. Click on '%AST_TURN_OFF_C_TDP' to highlight.

b. Type '**AST_TURN_OFF_C_SDP**' in the CMD: area of the Command Control window.

c. Press enter

d. Verify that the Real-Time command is inserted above the '%AST_TURN_OFF_C_TDP' command highlighted in Substep a.

41. Execute the ground script.

a. Click on the "Resume" button to invoke the execution of the ground script.

b. Verify G/S Status is "Active".

c. Click 'Send' to transmit the Real-Time Command.

d. Click 'GO' to pass the WAIT command.

42. Verify via the event display that each command, including the real-time command, was transmitted.

43. Close the Command Control Window

a. Using the "File" menu option select "Quit"

b. Verify Command Control Window closes

Analysis Request Subprocedure:

44. Begin a historical data request.
    a. Invoke the Analysis Request window.
    b. Click the mouse on the ‘Tools’ button.
    c. Verify that the Tools Dialog window and a list of tools is displayed to the user.
    d. Click the mouse on ‘Analysis_Request_Builder’.
    e. Click the mouse on the ‘OK’ button.
45. Enter into the Request Name field:

    > **Con_Request_XXX**, where XXX is the current day-of-the-year.
46. Click the mouse on the ‘EOC Only’ icon to select data to be processed in the EOC.
47. Click the mouse on the ‘All Data’ button in the Data Quality box.
48. Invoke the Analysis Telemetry Selector window.
    a. Click the mouse on the ‘Select Telemetry…’ button.
49. Use the selection filter to display a list a possible parameters to be used in the analysis request.
    a. Click the mouse on the ‘Filter…’ button.
    b. Click the mouse on ‘AM1’ in the Spacecraft area.
    c. Click the mouse on ‘CDH’ in the Instrument area.
    d. Click the mouse on ‘B’ in the Sample Type area.
    e. Click the mouse on the ‘Select’ button.
    f. Verify that ‘AM1_CDH_B’ is in the Selected text area.
    g. Click the mouse on the ‘OK’ button.
50. Select Health & Safety telemetry points to be included in the analysis along with a sampling rate.
    a. Click the mouse button on CDH_BR_DCU1_BIT_RES.
    b. Select a sampling rate. Click the mouse on the ‘All Data’ icon.
    c. Click the mouse button on the ‘Select’ button.
    d. Click the mouse button on CDH_BR_PNCODE_RCVD.
    e. Select a sampling rate. Click the mouse on the ‘All Data’ icon.

f. Click the mouse button on the ‘Select’ button.

g. Click the mouse on the ‘OK’ button.

51. Invoke the Time Selector window.

a. Click the mouse on the ‘Select Time…’ button.

b. Verify that the Pair Time Selector window is displayed. This window includes the following fields and user interface menus:

(1) Type of pair time (Absolute or Relative)

(2) Start/stop key (Time or Event)

(3) Specify selection (End Time, End Event, or Duration)

52. Enter the start and stop times to be used for a user-supplied statistics generation. Use the times noted earlier in the **Telemetry Processing** subprocedure.

a. Click the mouse on the ‘Absolute’ icon.

b. Click the mouse on the ‘Time’ icon.

c. Click the mouse on the ‘Specify End Time’ icon.

d. Enter into the Start Date field:

> **1996/XXX**, where XXX is the current day-of-the-year.

(1) Press “enter” or “return” on the keyboard

e. Enter into the Start Time field:

> **HH:MM:SS.mmm**

(1) Press “enter” or “return” on the keyboard

f. Enter into the Stop Date field:

> **1996/XXX**, where XXX is the current day-of-the-year.

(1) Press “enter” or “return” on the keyboard

g. Enter into the Stop Time field:

> **HH:MM:SS.mmm**

(1) Press “enter” or “return” on the keyboard

h. Click the mouse on the ‘OK’ button.

53. Enter the following in the Output Dataset Name field:

> **/fos/test/am1/datasets/Con_Request_XXX**

54. Save the analysis request.

   a. Click the mouse on the File pull down menu.

   b. Verify that a list of options appears. These options include new, open, save, save as, delete, and quit.

   c. Click the mouse on ‘Save as…’.

   d. Verify that a File Selection window is displayed with a default directory path in the “save as” field.

   e. Select/enter the following directory path:

      /fos/test/AM1/data/FUI/requests

   f. Enter the following at the end of the directory path:

      > Con_Request_XXX

   g. Click the mouse on the ‘OK’ button.

55. Generate a dataset for the given options selected.

   a. Click the mouse on the ‘OK’ button in the Analysis Request window.

56. Print out an ASCII report of the generated dataset.

   Note: Wait for an event message indicating that the Analysis Request is complete before performing this step.

   a. Invoke a terminal window at the user workstation and enter the following:

      %: **cd /fos/test/am1/scripts/setup**

      %: **setenv SCRIPT UserStation**

      %: **source FosEnvVars**

      %: **cd /fos/test/am1/bin/sun_sparc_5-4**

      %: **FaDrReaderDriver**

   b. Enter the following at the file name prompt:

      > **/fos/test/am1/datasets/Con_Request_XXX**

   c. Enter the option associated with ‘Convert to Carryout’.

   d. Enter the following in a terminal window to print the carryout file:

      %: **cd /fos/test/am1/datasets**

      %: **lp Con_Request_XXX.out**

57. Verify that the format of the carryout file agrees with the ECS-SAS ICD and that the contents of the carryout file are consistent with the telemetry data archived in the **Telemetry Processing** subprocedure.

Test No.: HRD 2000A

Test Title: EOC Hardware

Test Configuration: See Appendix G

Test Support: Manufacturing specifications for equipment in the EOC.

Test Description:

This test verifies that all FOS hardware components located at the EOC at GSFC meet requirement specifications. In most cases, inspection of hardware documentation (i.e. hardware specifications, drawings, etc.) is used to verify hardware requirements. In limited cases, when documentation is lacking, verification will be performed via demonstration.

Success Criteria:

This test is considered successful when all FOS hardware components located at the EOC meet performance and standards specified by the aggregate set of hardware requirements.

Procedures:

Real-time Server:

1. Inspect the Real-time Server for a CRT. ***(This step requires the assistance of the local Systems Administrator).***
    a. Have the Systems Administrator logon to the local systems operations console.
    b. At the prompt the Systems Administrator will enter

        console -C3

    c. Look for icon to verify the connection to the Real-time Server
2. Inspect the file to verify the Real-time Server disk drives provide a minimum of 4 gigabytes and that the Real-time Server disk drives are upgradeable to 8 gigabytes. ***(This step requires the assistance of the local Systems Administrator)***.
    a. At the systems operations console prompt, the Systems Administrator will enter

        df -kt advfs

    b. Add up the Blocks
3. Inspect all disk drives serving a specific function (e.g. system and applications software, or data storage) to verify they are identical and will have equal capacity. ***(This step requires the assistance of the local Systems Administrator)***.
    a. At the systems operations console prompt, the Systems Administrator will enter

        more /var/adm/messages

    b. View the output file for disk drive information

4. Inspect vendor documentation to verify the Real-time Server processor meets the following capacity and functional requirements:

   a. POSIX compliant IEEE 1003.1 operating system (UNIX).

      (1) Verify the UNIX revision ***(This step requires the assistance of the local Systems Administrator)***.

         (a) At the systems operations console prompt, the Systems Administrator will enter

            uname -a

         (b) Compare the revision against documentation

         (c) Log off the systems console

   b. POSIX compliant IEEE 1003.4 real-time extension

   c. Inspect Real-time Server to verify it supports 2 FDDI interface cards. (Inspect hardware)

5. Inspect vendor documentation to verify the Real-time Server is upgradeable/expandable with additional quantities and types of peripherals.

6. Inspect vendor documentation to verify the Real-time Server is upgradeable/replaceable within the same product family without the need for any perturbation of any software or replacement of any peripheral or attached component.

7. Inspect to verify each Real-time Server supports one tape drive.

8. Inspect vendor documentation to verify each Real-time Server tape drive has the following characteristics:

   a. 4mm Digital Audio Tape (DAT) format

   b. Accept industry standard magnetic 4mm DAT (i.e. DDS-90)

   c. Data transfer rate of 400KB/sec

9. Inspect vendor documentation to verify the Real-time Server tape drives are upgradeable/replaceable within the same product family.

10. Inspect to verify each Real-time Server supports one CD-ROM drive.

11. Inspect vendor documentation to verify the Real-time Server supports a 600MB CD-ROM.

<u>Data Server</u>

12. Inspect the Data Server for a CRT. ***(This step requires the assistance of the local Systems Administrator).***

   a. Have the Systems Administrator logon to the local systems operations console.

b. At the prompt the Systems Administrator will enter

console -C3

c. Look for icon to verify the connection to the Data Server by locating the icon.

13. Inspect the file to verify the Data Server disk drives provide a minimum of 4 gigabytes and that the Data Server disk drives are upgradeable to 8 gigabytes. ***(This step requires the assistance of the local Systems Administrator)***.

a. At the systems operations console prompt, the Systems Administrator will enter

df -kt advfs

b. Add up the Blocks

14. Inspect all disk drives serving a specific function (e.g. system and applications software, or data storage) to verify they are identical and will have equal capacity. ***(This step requires the assistance of the local Systems Administrator)***.

a. At the systems operations console prompt, the Systems Administrator will enter

more /var/adm/messages

b. View the output file for disk drive information

15. Inspect vendor documentation to verify the Data Server processor meets the following capacity and functional requirements:

a. POSIX compliant IEEE 1003.1 operating system (UNIX).

(1) Verify the UNIX revision ***(This step requires the assistance of the local Systems Administrator).***

(a) At the systems operations console prompt, the Systems Administrator will enter

uname -a

(b) Compare the revision against documentation

(c) Log off the console

b. Inspect Data Server to verify it supports 2 FDDI interface cards. (Inspect hardware)

16. Inspect vendor documentation to verify the Data Server processors is physically and functionally identical in supporting the FOS processing requirements.

17. Inspect vendor documentation to verify each Data Server is upgradeable/expandable with additional quantities and types of peripherals.

18. Inspect vendor documentation to verify each Data Server is upgradeable/replaceable within the same product family without the need for any perturbation of any software or replacement of any peripheral or attached component.

19. Inspect to verify each Data Server supports one tape drive.

20. Inspect vendor documentation to verify each Data Server tape drive has the following characteristics:

    a. 4mm Digital Audio Tape format

    b. Accept industry standard magnetic 4mm DAT (i.e. DDS-90)

    c. Data transfer rate of 400KB/sec

21. Inspect vendor documentation to verify the Data Server tape drives is upgradeable/replaceable within the same product family.

RAID:

22. Inspect vendor documentation to verify the RAID operating system is compatible with POSIX compliant operating systems (UNIX).

    a. Verify the UNIX revision ***(This step requires the assistance of the local Systems Administrator).***

        (1) Have the Systems Administrator logon to the local systems operations console.

        (2) At the prompt, the Systems Administrator will enter

            uname -a

        (3) Compare the revision against documentation

23. Demonstrate the RAID is accessible from servers and User Stations. ***(The server portion of this step requires the assistance of the local Systems Administrator).***

    a. For the Servers:

        (1) At the systems operations console prompt, the Systems Administrator will enter

            df

        (2) View the output to verify the RAID is accessible.

        (3) Log off the console

    b. For the User Stations:

        (1) Logon to the User station

            Username: **fostest1**

            Password: *********

        (2) Place the mouse pointer on the screen and activate the pulldown Menu by pressing the right most mouse button.

            (a) Select **Programs** from the pulldown menu.

(b) Select **terminal** to bring up a terminal window.

(3) Place the mouse pointer in the terminal window and click the mouse to activate the window. At the prompt enter

df

(4) View the output to verify the RAID is accessible.

(5) Log off the Userstation

24. Inspect EOSDIS Equipment Installation Report to verify RAID drives are identical and have equal capacity.

25. Inspect vendor documentation to verify the RAID will support RAID level-5: striping with interleaved parity.

26. Inspect vendor documentation to verify the RAID Disks are Hot Swappable

27. Inspect vendor documentation to verify the following components are Hot Swappable: power supplies, fans, disk-array controllers

28. Inspect vendor documentation to verify the RAID unit is network attached or hosted to a minimum of 2 front-end processors.

29. Inspect vendor documentation to verify the RAID unit has a data transfer rate of 20MB per second.

30. Inspect the EOC to verify that one Data Storage Unit supporting RAID level 5 has been provided.

User Stations:

31. Inspect vendor documentation to verify each User Station processor has the following capacity and functional requirements:

a. POSIX compliant IEEE 1003.1 operating system (UNIX)

(1) Verify the User Stations UNIX revision by logging into each User Station.

Username: **fostest1**

Password:*******

(2) Place the mouse pointer on the screen and activate the pulldown Menu by pressing the right most mouse button.

(a) Select **Programs** from the pulldown menu.

(b) Select **terminal** to bring up a terminal window.

(3) Place the mouse pointer in the terminal window and click the mouse to activate the window. At the prompt enter

uname -a

b. Supports an AUI 802.3 ethernet connection.

c. Contains 2GB internal diskspace.

32. Inspect to verify each User Station provides one color text and graphics display device and demonstrate it can:

a. Display the complete ASCII character set

(1) Place the mouse pointer in the terminal window and click the mouse to activate the window. At the prompt enter

man ascii

b. Inspect the SUN documentation to verify a minimum of 1024 pixel x 864 lines resolution display

c. Open "Color Chooser" window to display a minimum of 16 colors

(1) Place the mouse pointer in the terminal window and click the mouse to activate the window. At the prompt enter

cd /usr/openwin/bin

colorchooser &

d. Measure display page to verify 24 lines by 80 characters wide

e. Display a minimum of four screen display pages

f. Verify Display pages readable from any location along the width of the workstation and up to a distance of 6 feet from the screen

g. Verify RGB video output for hard copy

(1) At the Main Panel click on the icon that resembles a painter's pallet

(This brings up the Style Manager Window)

(2) In the Style Manager Window click on **COLOR**

(This will bring up the Style Manager - Color Dialog Box)

(3) In the Style Manager - Color Dialog Box click on **Modify**

(This will bring up the Style Manager - Modify Color Dialog Box)

Observe that RGB color selections are configured

h. Feature an integral swivel/tilt base

i. Provide brightness, contrast and power controls within easy reach.

j. Be physically relocateable within the operations center

k. Inspect by measuring, using a tape measure, to verify a minimum of 19 inch diagonal non-glare screen

33. Inspect each User Station for one QWERTY keyboard which is:

    a. Be detachable and cabled for movement on a desk-top style workstation area

    b. Provide a minimum of 12 programmable function keys

34. Inspect the User Station to verify one cursor pointing device (mouse) is provided.

35. Inspect vendor documentation to verify the User Station is upgradeable/replaceable within the same product family.

36. Demonstrate that all EOC workstations and processors are capable of operating simultaneously and independently.

    a. Logon to each of the User Stations using different logins and passwords.

    b. Bring up the Data Server on one User Station

        (1) Place the mouse pointer in the terminal window and click the mouse to activate the window. At the prompt enter

            rlogin foseoc7 -l *username*

            Password: *******

            cd /fos/test/am1/scripts/setup

            source A2_DataServerStartup

    c. Bring up the Realtime Server on one User Station

        (1) Place the mouse pointer in the terminal window and click the mouse to activate the window. At the prompt enter

            rlogin foseoc6 -l *username*

            Password: *******

            cd /fos/test/am1/scripts/setup

            source A2_RealtimeServerStartup

    d. Bring up user Workstations on two User Stations

        (1) Place the mouse pointer in the terminal window and click the mouse to activate the window. At the prompt enter

            cd /fos/test/am1/scripts/setup

            source A2_UserStationStartup

LAN:

37. Inspect vendor documentation to verify the EOC LAN is able to perform filtering based on network address to control access for external and internal interfaces.

38. Inspect vendor documentation to verify the EOC LAN is able to perform filtering based on TCP socket number to control access for external and internal interfaces.

39. Inspect vendor documentation to verify the EOC LAN is able to perform filtering based on protocol to control access for external and internal interfaces.

40. Inspect vendor documentation to verify that the local area network supports 100Mbps bandwidth (FDDI) and 10 Mbps baseband (Eithernet) (different segments) as described by the IEEE 802.3 standard (Verified by vendor Certification), and it provides:

    a. Data Integrity - The network checks for transmission errors.

    b. Redundancy - Redundant connectivity prevents a single point of failure.

    c. Expandability - The network must be able to support up to 100 connections.

41. Review EOC documentation to verify a redundant Local Area Network has been provided.

42. Inspect to verify there is a minimum of two network time servers located at the EOC.

43. Inspect vendor documentation to verify the time server supports the network time protocol (NTP).

44. Inspect the GFE time format against the network time server to verify the time reference for each network time server is a GFE NASA-36 bit serial time code signal.

45. Inspect to verify the EOC is designed with system test features to enable checkout and test with minimum impact on operations, including test points, "T" connections, break-out boxes, and permanently installed test equipment.

Real-time Server, Data Server & RAID Cabinets (H9A10):

46. Inspect vendor documentation to verify the cabinets for a RETMA standard 19 inches of equipment mounting width.

47. Inspect vendor documentation to verify the cabinet for a minimum of 54" and a maximum of 72" tall, with standard 19" rack mounts.

48. Inspect vendor documentation to verify the cabinets for a minimum of 24 inches of equipment mounting depth.

49. Measure to verify the cabinet provides a minimum of 48 vertical Units (1 Unit = 1.75") of equipment mounting height.

50. The cabinet shall accommodate EIA Universal Standard RS-310 hole spacing or provide for a continuously adjustable equipment and panel mounting system.

51. Inspect the cabinets for removable side panels and rear door.
52. Inspect to verify that each cabinet provides earth continuity for all components within.
53. Inspect cabinets for sufficient equipment ventilation.
54. Inspect each cabinet for a minimum of one power controller.

Printers:

55. Demonstrate to verify the video hardcopy device provides a minimum of 16 colors by printing a 16 color screen.
    a. Logon to a User Station

       Username: **fostest1**

       Password:*******

    b. Bring up Color Chooser to display colors (Reference step 32.c.1)
    c. Bring up Snapshot window
       (1) Place the mouse pointer in the terminal window and click the mouse to activate the window. At the prompt enter

           snapshot &

       (2) Place the mouse pointer in the Snapshot window and click on the snap button.
       (3) Move the mouse pointer into the Color Chooser window and click in the window.
       (4) Once the snap is complete, place the mouse pointer on the Print button located in the snapshot window, and press and hold the left most mouse button to activate the Printer Options selection box
       (5) Verify and/or change the following within the Printer Options selection box:
           (a) Printer name is set to: **fose3oe**
           (b) Orientation is set to: **sideways**
           (c) Position is set to: **center**
           (d) Scale is set to: **Both**
           (e) Make sure Monochrome Printer is not selected
       (6) Click on Print button
56. Demonstrate the video hardcopy device can be controlled from a remote control.
    a. See above step.

57. Inspect the video hardcopy device to verify it is physically relocatable within the EOC.
58. Inspect the vendor documentation to verify that video hardcopy device is capable of printing 2 pages per minute
59. Inspect vendor documentation to verify the printers are capable of printing 8 pages per minute
60. Inspect the vendor documentation to verify each logging printer is capable of printing a minimum of 1200 lines per minute.
61. Inspect Line Printer to verify it will support continuous feed paper.

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